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Therapeutic and Preventive Medicine.

THOUGHTS ON THE TREATMENT OF PNEUMONIA.*

BY EVERETT A. BATES, M.D., SPRINGFIELD, MASS.

THE name pneumonia has the same terrifying sound to me now that it had 27 years ago when in hospital wards we saw first its violence, its swift progress and its mortality, in spite of the best efforts of thorough clinicians and competent therapeutists.

It had its own way then,—it has its own way now; at times mild, short in its course and necessitating at or near the crisis and recovery, moderate circulatory stimulation,—too often its tumultuous symptoms present a picture that makes the heart ache in recognition of an impending fatal condition, in which the steady, hopeful attention of those in attendance have been rewarded only by defeat.

In a consideration of the treatment of this most important of the acute infections, whose victims number about 10% of the total mortality, I feel that you will be interested in an article by Dr. H. M. Hughes, from the Guy's Hospital reports in 1842, a synopsis of which I will give;—at that time the plan adopted for many years in the treatment of acute pneumonia had been, first, to bleed the patient to approaching syncope; then to administer a pill made up of opium gr. 1-2, tartrate of antimony gr. 1-4, and calomel gr. i or ii every 3, 4 or 6 hours; with this was given generally a saline mixture containing from minims xx to xxx of wine of antimony; after a few hours or the next day, the symptoms remaining unsubdued, or returning after temporary abatement, the bleeding was repeated; a third venesection was sometimes deemed necessary, and even now and then a fourth occurred—but was rare. Often the abstraction of blood 4 to 6 oz. by wet cupping was thought best, if symptoms did not lessen, and the strength of the patient had been evidently diminished by the first bleedings. The drugs mentioned were continued until the effect of mercury in the mouth was observed, unless of course the patient improved,—tolerated and lived through his treatment, we might say,—when the interval of dosage was lengthened; later in the disease, after the effects of blood-letting and salivation had been noted, blisters of the true epidermis lifting type were used with "good results."

Dr. Hughes also adds this little thought to his words upon routine treatment: "I have indeed not unfrequently been desirous of trying the pure antinominal, or as it has been called the 'contrastimulant' plan of treatment; but in so important a disease as pneumonia, in the proper management of which the life of the patient is frequently involved, I have not felt justified in discarding means which I have so often myself seen effectual to cure, and adopting other means, the results of which are based solely on the reports of others."

I fear I cannot write with the same degree of confidence. But there came in England, in the 5th and 6th decades of the last century, a great revulsion of practice against the so-called "antiphlogistic" and in favor of the "corroborant" treatment of inflammations and acute diseases generally; and about this time or a little later the use of "heroic doses" of alcohol was advocated and became the vogue, continuing in favor into the hospital days of some of us, for it was not uncommon to order in a severe pneumonia (not necessarily an alcoholic) an ounce of whiskey hourly.

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* Read before the Franklin District Medical Society, January 9, 1917.

By 1891 Pye-Smith of Guy's Hospital, in his edition of Fagge's Principles and Practice of Medicine (which Dr. F. C. Shattuck then believed the best work published upon this subject) states his belief in the "expectant" plan of treatment; to use his words,—"not in the sense of doing nothing for the patient, but of putting him in the best circumstance for recovery when the malady has run its course, and watching for any unfavorable symptom, so as to meet it when it appears." He adds: "the writer has employed venesection in a suitable case without preventing death,—has used cold baths without doing harm and with doubtful effect upon the course of the disease,—has given aconite from the beginning without in the least altering the rise of temperature or averting serious complications,—and has seen quinine, antimony, wine and brandy all in turn prove useless to check the progress of the disease."

Since then in the past 25 years we have seen the rise of the advocates of the guaiacol treatment, the massive dose, early digitalis treatment, the enthusiastic devotees of the out-of-door air treatment, the routine camphor treatment, the double salt of quinine and urea treatment, and more recently the methods of vaccine and serum therapy applied.

With each and all our hopes of being able to conquer, where undoubtedly to conquer was most essential, have been shattered.

Seven years ago I tried out the pneumococcus vaccine treatment in 17 cases of pneumonia, getting an autogenous vaccine in each case from the laboratory of the Tufts Medical School; and, starting with enthusiasm, saw it fail in those cases where it was most needed,—namely, the very sick and the fatal cases.

With pneumococcus sera I have had no experience; they seem to have, according to report, some bactericidal value given very early in the disease, earlier than most of us can make our diagnosis.

According to our present knowledge, it would seem necessary in our thoughts on the treatment of pneumonia, to bear carefully in mind the action of the toxic agent of the infecting organism; the therapeutist is of course not limited to the use of drugs; essentially and beyond question the elementary principles that apply to the husbanding of strength—a proper food supply and a full and sufficient air supply—have the same important bearing in this disease as in all other acute diseases, and need not be specially discussed.

The phenomena of the action of the toxic agents of lobar pneumonia give symptoms which show in mild cases the evidence of a moderate stimulation of the central nervous system and the heart muscle, and in cases of severe intoxication or toxaemia give a picture of intensified stimulation, leading to exhaustion from over-stimulation, or early and primary general enfeeblement; there is obviously, in addition, the mechanical embarrassment to respiration and circulation due to the engorged and solidifying lung, all of which may lead to a respiratory insufficiency ending in the added toxaemia of a slowly progressive asphyxiation, or in the exhaustion and paralysis of an over-stimulated, overworked respiratory center;—and, in circulatory insufficiency,—which quickly leads to the accumulation of toxic agents, a dilating heart, oedema of the lungs, and a complete exhaustion of the cardiac muscle.

With these thoughts in mind we should be led in the early case to freeing the digestive tube of its undigested and unabsorbed residue by means of a mild, thorough cathartic; and I am inclined in many cases to employ catharsis, especially if anything like distention appears to offer an embarrassment to respiratory or cardiac action. A distended belly is as serious and bad an omen as in typhoid and demands the usual resources at our command to control it; whites of eggs only for nourishment; strychnia clearly is indicated for its stimulating effect upon the splanchnic system; eserine, so valuable in the intestinal paresis following abdominal operations, is valueless in pneumonia, where vaso-motor dilatation and engorgement of the abdominal vessels is the factor to be combated.

When not contra-indicated as mentioned above, it stands to reason that in the selection of food for the pneumonia patient,—while it is not quite so important to feed fully as in some of the febrile diseases of longer duration,—some combination of liquids will abundantly nourish, while others mean an insufficient aid to tissues where rapid retrograde processes are active. Four glasses of milk,—two of them containing extra cream and sugar,—two cups of gruel, two of cream soup and two eggnoggs will furnish an abundant caloric value for a person weighing 150 pounds. Animal broths, on account of their low food value, I would omit. An attempt should be made in addition to the nourishing liquids to keep the urinary output well up by the giving of water; and a daily urine chart is essential in pneumonia as in all infectious diseases, not only as an index of eliminative action, but also as a hint of blood pressure. Fever need not be taken into account unless there is hyperpyrexia, when a bath of water and 40% alcohol, equal parts, at a temperature of 75° to 80°, is indicated as in all febrile conditions with temperatures of 104° or thereabouts; temperatures themselves may reasonably be considered to play some part in nature's therapeutic processes; and certainly in a short disease like pneumonia seldom need combating; in fact one feels happier and safer in pneumonia if his patient runs a good steady temperature around 103°—the low temperature pneumonias being notoriously of the low leucocyte count, exhausted, critical type. With high temperature, cyanosis or pallor, and cold extremities the hot bath is naturally chosen in place of the cold.

Pain should always be relieved; as the common pleuritic type, if present, not only exhausts, but by diminishing the respiratory excursion lessens blood aeration and promotes early toxaemia; at times cold, again heat locally, and always morphine, gives relief; some authorities give first place to leeches, but I cannot speak personally of this method; the parallel scars upon the backs of many young aliens from the southern nations of Europe are evidence of the continued popularity in places of the artificial leech or wet cup.

For restlessness, insomnia and delirium—always alcohol for the alcoholic (and to this class in pneumonia belong those who consider themselves very moderate in their use of alcohol), sponging and opium for all; bromide is too slow and the later coal tar derivative hypnotics too uncertain and not free from the suspicion of being depressants. To the use of opium there was formerly much objection, for fear of undue slowing of the respiration and of blocking kidney efficiency; but I believe the value of its conservative use in pneumonia cannot be overestimated; certainly when there is excitation and over-stimulation of the center of respiration, some form of opium should be frequently repeated; as a working rule, a respiratory rate of double the normal calls for a respiratory sedative.

In a suspected pneumonia seen immediately after its onset, there is nothing so good as Dover's powder, and the least depressing of the coal tar sudorifics—or sweet spirits of nitre; the excited circulation is quieted and the resultant sweating probably helpful from the eliminative standpoint.

A consideration of blood-letting in certain robust, plethoric patients, where the right heart is suddenly staggered by an extensive pulmonary engorgement, must be mentioned; I have advised venesection in but two cases—pneumonia in pregnancy, notoriously fatal; there was only temporary relief.

The phenomenon of leucocytosis—and the activity of nature's warriors, the leucocytes, in those cases presenting a most favorable prognosis—brings up the question of the use of certain drugs in routine practice: experimentally creosote, guaiacol and iodine increase leucocytes. W. H. Thompson of New York speaks enthusiastically of the value of creosote carbonate; at one time I followed his suggestion where renal hyperaemia was not too marked, but, using 5 to 10 grain doses every 3 or 4 hours, instead of the 15 grains advised, I found that the kidneys quickly showed signs of irritation. Guaiacol is universally condemned; and iodine I believe of value only in an accompanying bronchitis with tenacious sputum.

The routine use of alcohol in pneumonia cannot be favored, except in the alcoholic, or where in digestive failure it is needed for its caloric value; with the dry brown tongue of an exhausting toxemia, a few doses often improve the situation.

The use of strychnia too as a routine may, it seems to me, be harmful by over-whipping an already overworked respiratory center and so hastening a respiratory exhaustion.

Oxygen does at times bring intervals of relief to the sufferer, but it cannot affect the elimination of CO_2.

With sweating and collapse, empty vessels and a struggling heart, the saline injection is certainly most valuable in tiding over the emergency, which too demands the consideration of atropine.

However, it is to the heart in pnuemonia that our thought is constantly and repeatedly turned; as long as the heart is doing its work satisfactorily we may attend to the maintenance of the patient's strength and the elimination of waste, but our observation must never grow lax of the mechanical and toxic effects of the disease upon the circulation itself.

The quality of the muscle sound, and the relative snap of the aortic and pulmonic notes should be closely watched; heart muscle stimulants being clearly required when the pulmonic second sound gets faint or distant.

The pneumonic pulse is a very hard pulse by which to judge of early falling blood pressure; and sometimes respiratory insufficiency and pulmonary oedema are already in existence before the average nurse can detect palpably the lowering blood tension and give a warning which is too late.

The treatment of an established, overwhelming cardiac toxaemia is most discouraging; and the study of how to recognize early its threatenings and how to offset its onset necessitates the use of such methods as bring as exact a knowledge as possible of vaso-motor conditions; bacterial poisoning of the vaso-dilating centers means reduced blood pressure; cardiac and vasomotor paralysis go hand in hand.

In addition to a slowly rising pulse, and diminished urinary output, together with a painstaking study of the heart sounds in connection with the pulse,—the study of the blood pressure by means of the sphygmomanometer gives an added sense of definite circulatory information, and is an unerring index in anticipating when cardiac toxaemia has progressed to a point demanding circulatory stimulants. An advance knowledge of what the blood pressure is under normal conditions in the individual is helpful; for what might be called a good blood pressure may be a low one relatively if arteriosclerosis is in evidence. Therefore the working rule that active stimulation must be instituted whenever the blood pressure figure falls to the pulse rate or lower, is exact only in cases with reasonably low normal pressure. Any sudden or great fall in pressure is of course a bad omen.

Of the circulatory stimulants members of the digitalis series are our mainstay. Alcohol is not a circulatory stimulant; nor strychnine, because as a vaso-motor stimulant, except in large doses, it has too little effect in an approaching circulatory crisis upon the vessels most involved in this disease,—namely the splanchnic area. Caffeine sodium benzoate in 1-2 to 1 grain doses, on account of its bracing effect, is good always in pneumonia; in a crisis the dose must be 2 to 3 grains, and with camphor may tide over a short danger period; an ampoule of pituitrin hypodermically can also be added to our emergency armamentarium.

From observation I have found that too often the case is almost hopeless when camphor is used, the mischief, myocardial insufficiency, having been in existence for hours, although sudden cardiac dilatation does occur. In this latter class of cases where digitalis has not previously been given, A. K. Stone has spoken enthusiastically of the intravenous use of strophanthin; I cannot testify to its value, for where I have felt it might do good, I have feared to use it on account of the possibility of heart-block, digitalis having been previously used. I thought at one time that the subcutaneous use of adrenalin soln., 1 to 1000, gave effective aid; until someone proved that its effect was purely local about the point of injection, and its intravenous use only of value; I believe its hypodermic use has still its advocates.

The ammonium compounds are often given empirically as expectorants, although more generally symptomatically as when expectoration ceases or diminishes; but inasmuch as these signs represent flagging pulmonary circulation requiring a circulatory stimulant we cannot place much reliance upon them.

Unfortunately, when facing a circulatory crisis, we find in digitalis a slow-acting drug requiring from 25 to 75 hours for its full action; and in pneumonia it is obviously out of the question to wait so long for results;—and this puts all the more strikingly an emphasis upon early recognition of falling blood pressure. A dangerous and difficult drug to use, I believe that in pneumonia, when indicated, digitalis has no substitute, and that it should be given earlier than is the usual custom—one, two or three doses at proper intervals, thus anticipating, if the blood pressure gives the hint, what will surely happen the next day or the day following.

A physician should use whatever form of digitalis he is accustomed to use, with the action of which he has become familiar. Some of you know my own enthusiasm for the preparation—"Digipuratum," and more particularly where quick action is desired in the intramuscular injection of the liquid digipuratum.

I have noticed in using the latter that the effect appeared in the pulse during the third or fourth hour, and was sustained generally as long as 18 hours.

In closing may I quote from another:—"No disease demands for its conscientious treatment greater sacrifice from the physician and nurse during a limited period, none greater persistence, none greater judgment. No case is so light that it may not ultimately offer a grave prognosis, none so grave that it may not yield and finally recover."

Neither, in our coming and going among our patients, should we lose sight of the thought of prophylaxis; for many tracheitis and bronchitis attacks are due to one of three or four forms of pneumococci, and a more general examination of sputum in these cases would warn physician and patient of a hidden unknown possibility of air cell invasion.

Original Articles.

INTESTINAL TOXEMIA AND SEQUELAE.*

By William E. Preble, M.D., Boston.

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Scope of Paper. One of the most important problems that has in recent years engaged the attention of the medical profession is that of the formation of poisons in the digestive tract, the results thereof, and the treatment therefor.

The literature on the subject is voluminous. This paper is intended to present some of the main features of the problem with some of the more important evidence recently brought out.

Historical. In 1887, Bouchard[1] advanced his theories on autointoxication from the intestinal tract. Food poisoning, internal strangulation, and infections, such as typhoid and cholera, were all comprehended by him as autointoxications of intestinal origin.

Metchnikoff[2] was the real founder of what we might call the "school" of intestinal toxemia. His idea that the colon was simply a breeding place of pathogenic bacteria which caused most of the ills of mankind, and which could be successfully combated by the Bulgarian bacillus, is now an exploded theory.

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* Read before the Bristol South District Society at New Bedford, Nov. 9, 1916.

Stasis—Ptosis—Toxemia. The man to whom we owe the most for his work on this whole subject is undoubtedly Sir Arbuthnot Lane. Whatever we may think of his conclusions, his name will go down in medical history as the man who focused the attention of the medical world on the whole matter of stasis, ptosis, and toxemia in the digestive canal.

According to Lane,[3] the primary factors are mechanical. The process begins with overloading of the large bowel, especially of the cecum and ascending colon, due largely to the erect position, and exaggerated by corsets and defecation in the sitting position. Stagnation in the cecum, with distention and descent into the pelvis follow, and adhesions form across appendix and ileum in an attempt to hold the cecum in position. The strain on the ascending colon and hepatic flexure makes it difficult for fecal matter to pass, and adhesions form to hold the bowel in place. These contract, pulling the hepatic flexure up higher than normal. The same process takes place on the left. The transverse colon sags, drags on the stomach, and pulls it down, and adhesions form about the pylorus, duodenum, and gall-bladder. The sigmoid becomes distended, shortened, and straightened, or much distended in the middle and caught at both ends by adhesions.

The adhesions across the ileum, a few inches from the cecum, hold up the ileum at a sharp angle, forming the famous Lane's kink. The whole process of adhesion formation has its origin in strain and the resulting "crystallization of lines of strain."

The stagnation in the bowel causes abnormal putrefaction of the contents, and "the absorption of toxic material produces a degenerative change in all the structures of the body." The last statement is rather sweeping, and, if true, much of the illness to which mankind is heir is caused primarily by stasis in the bowel. The following list of diseases and conditions due directly or indirectly to stasis is taken from the writings of Lane, Watson,[4] and Charles H. Mayo[5]: Appendicitis, arteriosclerosis, arthritis, carcinoma of ovaries, cholecystitis, circulatory disturbance, colitis, constipation, curvature of spine, cystic degeneration of ovaries and breasts, diarrhoea, endarteritis, epilepsy, foul perspiration, floating kidney, gall-stones, gastric and duodenal ulcers, gingivitis, gout, interference with respiration, intestinal obstruction, loss of sexual desire, loss of control of temper, loss of vitality, mastitis, migraine, muscular atrophy, neuralgia, neurasthenia, pancreatitis, pharyngitis, pigmentation of skin, pyorrhoea, renal disease, tuberculosis, uterine versions and flexions, visceral ptosis, volvulus.

If it is true that all of the above are primarily due to ileal and caecal stasis, extirpation of the large bowel in all children before the age of, say, 10 years, would seem to be conservative surgery.

Before adopting this course as a universal procedure, let us consider some of the other theories as to the cause of ptosis and stasis and their sequelæ. In 1913, Kellogg[6] of Battle Creek published his papers attempting to demonstrate that practically all of Lane's list of diseases, with a few more added, are due to incompetency of the ileo-cæcal valve, allowing reflux of the contents of the colon into the ileum.

The obvious surgical treatment is to tighten up the valve a bit, and prevent the reflux. This would seem to be much simpler than Lane's short-circuiting operation, and if Kellogg is right in his theory, his operation would seem to be the one to adopt as a universal panacea, especially as Kellogg rather broadly intimates that Lane's kink, itself, is due to incompetency of the ileo-cæcal valve.

But, in 1913, Martin[7] of Philadelphia shows us that Lane and Kellogg are all wrong; that the primary cause of all this trouble is *stenosis*, or stricture, of the ileo-cæcal valve, causing retention of the waste products of digestion in the ileum, and that in certain cases the valve opening should be enlarged, by a simple surgical operation, which he describes. So far, all agree that the primary seat of trouble is in the region of the ileo-cæcal valve; but Case, Kellogg's roentgenologist, who is also a surgeon, stated in a paper which he read in Chicago recently that many of the abnormalities shown by x-ray to exist in the right abdomen were really due to obstructive conditions in the sigmoid. This is rather discouraging, as Case and Kellogg were co-workers on the original papers demonstrating that the primary cause of intestinal toxemia and its sequelæ was incompetency of the ileo-cæcal valve. So, to date, we have Lane with his theory of stasis from gravity, with "crystallization of lines of strain"; Kellogg with his incompetency of the ileo-cæcal valve; Martin with his stenosis or stricture of the ileocæcal valve; and Case with his new theory of obstructive conditions in the sigmoid, all advancing a different primary cause for the direct production of intestinal stasis, ptosis, and toxemia, and all giving approximately the same list of pathological conditions as sequelæ.

Other Theories. While reviewing the literature on this subject, I thought it would be interesting to look into the matter from other angles. Taking the above-mentioned group of diseases, I made a hasty review of the recent literature to find other theories concerning the primary cause of arthritis, gastric ulcer, tuberculosis, epilepsy, etc. I found that according to Keith[8] intestinal stasis is always secondary to a neuro-muscular disorder of the bowel, beginning with a degeneration of the sympathetic nerves.

Beveridge[9] thinks the internal secretions of the ductless glands may play an important part in the production of intestinal putrefaction and its sequelæ.

Goldthwait[10] elaborated a theory in his Shattuck Lecture last year that is deserving of some attention. He ascribed anatomic and mechanistic causes for practically the same list of diseases that Lane has given, with a few additions, such as goitre, eye trouble, mental disease, diabetes, and race degeneration. According to Goldthwait, anatomic anomalies in the skeleton and improper posture result in pressure on various organs, causing a multitude of troubles, many of which may be relieved or cured by a change in posture. He makes some very sweeping statements. For instance, speaking of epilepsy, he says, "one occasionally sees convulsions stop instantly by mere change of position." Speaking of diabetes, he says, ". . . one has seen cases in which after most careful dieting the sugar has persisted, and then after supporting the organs properly the sugar has wholly disappeared." The number of cases in which this has occurred is not stated, nor are any other details given. He does not state whether the "careful dieting" in these cases was under the direction of a competent internist, or was prescribed by an orthopedic surgeon. Neither does he give us any hint as to what classes of these patients yield to his treatment, and what classes require bromides and dieting.

For my part, I must confess that, even after reading articles by Bean,[11] Goldthwait, and Bryant,[12] personally I cannot always correctly diagnose even the type—carnivorous, normal, or herbivorous—to which a given individual belongs. When we see a thin, stoop-shouldered, dark-haired 90-lb. girl of 19, with prominent ears and eyes, thin lips, and undeveloped breasts, we can, of course, immediately say, "carnivorous." But many girls of this type weigh 180 at 45, and the ears and eyes do not seem so prominent, the lips so thin, nor the breasts so undeveloped. Presumably the correct method of diagnosis now would be to count her vertebræ; if this is not conclusive, open her abdomen and measure the length of her intestine. We are then in a position to feed her according to type.

Adami[13] in 1899 wrote very instructively on "Latent Infection" and "Subinfection," and again in 1914 wrote a very exhaustive article on "Chronic Intestinal Stasis," taking the view that low-grade infections are the primary causes in most of the same much-discussed group of diseases that we have mentioned. Since 1911, Billings,[14] Rosenow,[15] and others have written at length on focal infection as the cause of arthritis, appendicitis, gastric and duodenal ulcers, and many other of the diseases in the above group.

We have, then, a more or less well-defined group of some forty to fifty diseases and morbid conditions, of unproved etiology, and about a dozen men of experience and standing in the profession, each advancing some one condition as the primary cause of all the diseases, and each presenting series of cases and clinical evidence to prove his contention. It is obvious that they cannot all be right. Let us see what other evidence we can find to shed light on the subject.

Toxins and Theories of Toxins. Adami[13] and others have written on the subject of the formation of toxic products in the intestinal canal.

Toxins formed in the bowel may conceivably be of four types:—(1) Products of disintegration of foodstuffs by the digestive juices. (2) Products of the disintegration of foodstuffs by bacterial activity. (3) The ectotoxins discharged by the intestinal bacteria. (4) Toxins from dead bodies of bacteria.

In regard to the first type, peptones, proteoses, etc., from proteid digestion, are toxic only when introduced directly into the blood or tissues, and are not absorbed unchanged by the healthy bowel. Furthermore, these substances when introduced into the blood stream give symptoms of anaphylaxis, and do not produce the symptoms of the disorders enumerated above. Neither do the carbohydrates and fats form substances that give the above symptoms.

Considering the products of bacterial activity on foodstuffs, the experimental evidence during the past twenty-five years is rather disappointing. Certain poisonous substances are formed, such as putrescin and cadaverin, but in such small quantities as to be negligible; cholin and neurin have not been sufficiently investigated to prove much; phenol, skatol, indol, and cresol—derivations of tryptophan—may cause headache, fatigue, and general malaise, according to Herter, but even this is not proven. Furthermore, these substances are not easily absorbed by the large intestine, and, when absorbed, are speedily oxidized and form harmless combinations with the sulphuric and glycuronic acids of the blood, and are excreted by the kidneys as conjugated sulphates and glycuronates (Howell[16]). It is now known that all proteids are broken down into their constituent amino-acids in the bowel and absorbed in this form (Folin[17]). The end products of one kind of proteid are no more poisonous than those of any other kind (Vaughan[18]).

Considering now the third possibility,—the ectotoxins of the bacteria themselves,—one finds that the colon bacillus and the streptococcus, the two most common inhabitants of the tract, do not produce ectotoxins. The B. botulinus and B. pyocyaneus are the only known invaders of the bowel that form ectotoxins which produce symptoms of intoxication (Adami). Furthermore, the split products of the bodies of the bacteria are the same as the split products of other proteids (Vaughan). We seem to be at a standstill, as far as finding chemical or bacterial toxins that will cause the symptoms and pathology of any considerable number of our list of diseases.

Other Factors. Let us look for other evidence bearing on the subject. Lane builds his whole theory on the assumption that a full cecum, stomach, transverse colon, etc., will, by the action of gravity alone, become ptosed. Cannon[19] shows us that "in the abdomen, gravity can have no effect." "Even when the body is in the upright position, and a large, artificial opening connects the stomach and intestine, water will not run out." After gastro-enterostomy, if the pylorus is patent, all or nearly all of the gastric contents goes through the pylorus. If the lowest point in the cecum is anastomosed to the rectum, the contents of the cecum will still pass up the ascending colon, and over the hepatic flexure. Lane's whole theory, then, seems to be based on a wrong premise. Furthermore, Rinkenberger[20] of Los Angeles spent some time in Lane's clinic in 1911. He says he took a series of healthy young men and demonstrated with the x-ray absolutely the same pictures as Lane was showing as stasis. Bassler[21] says that at least 18% of all people show a Lane's kink, and that in 167 cases showing definite kinks, in only five did the kink cause definite delay. The evidence seems overwhelming that Lane has missed the primary factor in the whole matter.

Giving up the idea of finding a single cause for all of our list of diseases, or even for all cases of intestinal stasis, let us consider some of the evidence concerning certain types of infections. Adami advanced his ideas regarding subinfection in 1899, and in 1914 he suggested subinfection as the primary cause in many of these diseases of doubtful etiology. Lymph nodes of the respiratory and alimentary tracts of normal animals constantly afford cultures of bacteria, and livers and kidneys of healthy animals may yield cultures. Leucocytes constantly carry bacteria into the system, and as these bacteria are destroyed, their toxins poison the adjacent cells, bringing about the death of the cells, and their replacement by fibrous tissue. Tubercle bacilli and other bacteria fed to young animals may be found in the thoracic duct in an hour or two. Colon bacilli and streptococci were occasionally found in blood cultures by Lane, but Lane did not do blood cultures on all his patients. Adami claims that many of the symptoms and conditions given by Lane follow subinfections, not necessarily originating in the colon, but anywhere from mouth to anus. Recurrent inoculation of animals with colon bacilli and streptococci has demonstrated this. Charlton[22] demonstrated that a grave anemia may be produced in animals by this means. Luff[23] states that the lesions in arthritis and myositis are of the nature of hyperplasia of ordinary connective tissue, which may resolve, or go on to the formation of nodules or patches of thickening. Opie[24] thinks cirrhosis of the liver is probably due to a similar process, and Gaskell[25] includes chronic Bright's disease in the same category.

The work of Billings, Rosenow, and their associates on focal infections supplements the work on subinfection. They have proven beyond question that bacteria may live for indefinite periods in circumscribed, confined colonies in certain tissues. These colonies may send out small masses of bacteria into the blood stream which form bacterial emboli and cause various lesions. Streptococci, pneumococci, staphylococci, gonococci, and tubercle bacilli, and other bacteria, may grow and be carried to distant tissues in this manner. The foci may be anywhere in the body. Favorite sites are the tonsils, peridental tissue, nasal sinuses, Fallopian tubes, and prostate gland. It seems definitely proven that arthritis deformans, gonorrhœal arthritis, and tubercular arthritis and adenitis are caused in this way.

Gastric and duodenal ulcers and appendicitis are almost certainly in this class. Rosenow has obtained pure cultures of streptococci from the deep tissues of excised gastric ulcers, inoculated rabbits from the cultures, and produced typical gastric ulcers in the rabbits, from which he again obtained the same strain of streptococci. Many other diseases which were formerly supposed to be due to various diatheses, dyscrasias, and toxemias are now known to be of infectious origin.

I am not trying to prove that all the diseases in Lane's list are caused primarily by subinfections or focal infections; in fact, quite the contrary. I think some of them are due to faulty metabolism—for example, diabetes mellitus, gout, and probably migraine. In most cases tuberculosis is probably a primary infection. The neuroses, such as neurasthenia, are probably due to a variety of causes. Indeed, any person with a serious chronic disease becomes more or less neurotic. Conditions vaguely described as debility, loss of vitality, asthenia, etc., may be due to anything from incipient tuberculosis to lack of proper prenatal nourishment. No one primary cause will explain all cases of stasis and ptosis,—neither Lane's gravity theory, Adami's subinfections, nor Goldthwait's anatomic and mechanistic conception.

May not some of this class of thin, ptotic, apparently toxemic individuals be victims of under-nutrition, or malnutrition, dating back to their prenatal and postnatal periods? May not the nutrition of the child *in utero* and in babyhood and early childhood be a factor in determining the size, skeletal and muscular development, and stamina, that predisposes on the one hand to strong, well-formed, robust manhood, or on the other to the stoop-shouldered, anemic, ptotic dyspeptic who is heir to intestinal ptosis and stasis and other atonic conditions?

Surgical Treatment. When these patients are operated, it is usually for either toxemia, stasis, obstruction, or arthritis. The operations range from division of adhesions to extirpation of the most of the colon. The details of the various operations I will leave to the surgeons.

As to the results of surgical treatment, some of the figures are very interesting. Fagge and Hughes[26] recently reported end results on all of Lane's cases short-circuited for arthritis from 1909 to August, 1914. There were 33 operations. Six patients died within 4 months, 1 at 15 months, and 1 not known. The death rate seems to be about 25%.

Dr. Bottomley[27] recently reported results on 10 cases of his own, 7 of Lane's, and 14 of Rea Smith's,—operated for arthritis. Taking 29 of these 1½ to 3 years post operative, the results figure approximately as follows:—Cured or greatly improved 42%; considerably improved 55%; worse 14%; no change 24%. Deaths 6½%.

It is stated that "amelioration in general health followed in all cases." (I presume the statement applies only to those who survived the operation.) I have been unable to find any conclusive experimental or clinical evidence that an organism causing arthritis has ever been found to have its primary focus in the intestine. We known that bacteria will sometimes pass through the wall of the bowel, and get into the circulation, but unless the primary focus is in the bowel, it seems to me that short-circuiting is contraindicated. I think the weight of evidence is much against toxemia as a cause of arthritis deformans.

I have not at hand statistics on large series of cases operated for stasis. Dr. W. E. Browne of Boston, in a private communication, reports 3 cases which he short-circuited over one year ago. All of these are relieved of the symptoms for which they were operated.

In most series of cases reported, recurrence of symptoms after a short time, and trouble from adhesions and obstructive conditions, requiring subsequent operations, appear with rather marked frequency.

Medical Treatment. The medical treatment for chronic intestinal stasis, in cases without anatomic or pathologic cause of stasis, is very ably summarized by Bastedo.[28] It includes education of the patient as to habit formation as regards bowel movements; exercise; massage of the abdomen in certain cases; support of the abdomen; diet to give bulk to the stools and to furnish mechanical and chemical stimulation to the mucosa; water drinking; medicinal agents, such as the salines, agar-agar, and paraffine oil. It may be well to mention here that Ross of the Lister Institute, London, has found that some paraffine oils contain substances which stimulate cell proliferation, and may be an active cause of cancer. Cameron, Eckhardt, Eulenberg, Hoffman, and George Liebe have all called attention to the frequency of cancer in paraffine workers. It is said that the irritating substances may easily be removed by a process described by Ross. (Third volume of his Researches). Paraffine oil is much in vogue at the present time. In my opinion, it is no more valuable than several other laxatives, and it is rather expensive. Plenty of rest in the recumbent position, a fattening diet, and treatment of the accompanying neuroses should also be mentioned as valuable in treating these patients.

The immediate results of medical treatment are almost invariably good. In fact it is a question in my mind if the rest in bed, careful regulation of diet and bowels over a considerable period, tonic treatment, and the psychic effect of the operation are not the important factors in the relief of many of these patients who are operated. Are not many of them relieved, not *because of* the operation, but *in spite of* the operation? The fact that so many patients survive the short-circuiting operation without more serious ill effects is, to me, evidence that God is good, and that in planning the internal economy of the abdomen, He anticipated much meddlesome interference by over-enthusiastic surgeons.

Conclusions. Some definite conclusions, it seems to me, may be drawn from the mass of work and theorizing that has been done on this subject.

1. The whole subject of intestinal toxemia is still in the stage of evolution.

2. The evidence at hand favors infection, rather than toxemia, as the primary etiological factor in many of the diseases and conditions that have been associated with stasis and ptosis; hence, every possible source of infection should be investigated in these cases.

3. Surgery should be resorted to only in two classes of cases:—
   (a) definite obstruction;
   (b) cases in which the primary cause of the trouble is removable, and may be located beyond reasonable doubt at the site of the proposed operation.

4. The words in reference to this subject of that great surgeon, William J. Mayo, should be carefully considered:—"When one looks back over the fads and fancies in medicine......one may well pause, and make haste slowly."

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TRENCH-FOOT.

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There is a peculiar and interesting affection of the soldier's foot, occurring during the winter months, roughly from December to March, which has been designated by various connotative terms, such as frost-bite, trench frost-bite, water-bite, boot-bite and chilled foot. In view of the fact, however, that it occurs in the large majority of the cases when the temperature is not below freezing-point, and that the varying factors of cold, wet, localized pressure and inactivity contribute to it, the term "trench-foot" has been generally accepted for its designation. This condition is not unique to this war, but was observed in the Balkan war, particularly among the Greek troops in the advance posts at the siege of Bizani; occurring not so much during very cold weather as during rainy weather, and presenting four characteristic symptoms: anesthesia, pain, oedema and cyanosis in varying degrees. The condition is common to both British and French armies on the western front and occurs with such frequency that it becomes of considerable importance, in the invaliding for several weeks of thousands of active soldiers. Mr. F. McG. Loughnane, former British Red Cross surgeon at the Meerut Stationary Hospital, Boulogne, reports that out of one convoy of 160 cases, about 120 were cases of trench-foot, many of them upon stretchers. A large number of these cases would be fit in a few days to be sent back to light duty, but many others with more severe symptoms would be sent to the base hospitals for prolonged treatment. To give two instances in the French army: During the winter 1914-15 M. Berthélemy observed 400 cases in his field hospital near Ypres, while MM. Orticoni and Delage evacuated 4,657 cases from a clearing station at Popperinghe. In the American Women's War Hospital during the last two winters there have been admitted about 180 cases of trench-foot, amounting to 8% of all the patients admitted since the hospital was opened, and to 17% of those cases admitted during the prevalence of trench-foot. These cases have had an average length of illness of 22 days. Before they were back on active service 5-6 weeks had probably elapsed. This last winter the number of cases has diminished to nearly a third of those treated during the winter of 1914-15. Assuming this to be the case in other hospitals, the wisdom acquired during the previous winter seems to have borne fruit in prevention.

The symptoms of trench-foot vary somewhat in degree and order of onset, involving both feet usually, occasionally only one foot. After a period of duty in the trenches, varying from a few hours to several days, invariably soaked with cold water up to knees or hips, the soldier feels that his feet are becoming numb and cold. He knocks them against whatever hard surface presents, to restore normal sensation. In a few hours they begin to swell. This may go on for 3-4 days. Gradually pain and tenderness develop, impeding walking or making it impossible. The pain assumes several forms: it may be a severe tingling or burning of the foot, most marked at the points of greatest pressure—heel and ball of foot; often it is of a rheumatic type, involving the toes and ankles when movement is attempted. Again, it may extend up the calves to knee and thigh muscles, tingling and prickling—neuritic in type. In these cases the calf muscles are generally tender. The pain is usually of the first two types, confined to the foot. In a lesser number of cases the first symptom may be pain of the types mentioned, followed by swelling and numbness; or the sensation of swelling, with final onset of pain. The rapidity of development of symptoms varies, doubtless according to the individual differences in circulation and resistance. For instance, one case had been in the trenches six days continuously when symptoms began and on the twelfth day he was incapacitated. Another had been on duty only 24 hours when forced to withdraw. In the average case symptoms set in after 3-4 days' duty and incapacitate in 24-48 hours.

In clinical appearance there are several varieties of trench-foot, depending upon the degree of exposure. In the simplest type there is a discoloration of the skin, varying from a hyperaemia to a dark red or purple hue. Usually this is confined to the areas where greatest pressure is exerted by the shoe: the head of the first metatarsal bone, the first and fifth metatarso-phalangeal joints, the big toe and the joints of the smaller toes. It may involve merely the depression at the base of the toes or extend over the dorsum and external border of the foot, generally in such cases with some swelling. The sole of the foot is usually not involved. Anesthesia to touch and pin-point and hyperesthesia, sometimes both, are observed; occasionally pain. The anesthesia is confined to the areas of discoloration and is very common in the toes, particularly the big toes. The hyperesthesia generally occurs in a small zone just outside the anesthetic areas though occasionally it may involve the whole dorsum. Pain is usually elicited by active or passive motions in the metatarso-phalangeal joints.

Another type, characterized by somewhat more severe subjective symptoms, seems at first to be normal in appearance. There is no discoloration. In the first day or two there may be some oedema; none after. The skin is rough and dry, rather more pale than normal. Hyperesthesia is apt to be general and acute, accompanied by numbness of the toes. In these cases burning and tingling may be severe, accentuated to an unbearable degree by warm coverings, proximity to a fire, or even draughts of air. Severe pain is elicited by motion in the toe and ankle joints.

In the longer exposed and more severe types, the chief features are the deep discoloration and oedema, often accompanied by blebs and ulcerations. The discoloration is of a deep purple hue, involving in cases of only moderate oedema the distal portion of the dorsum of the foot, but in the more pronounced cases extending over the back of the foot and toes, even involving the sole. The oedema varies from a moderate puffiness of the dorsum to an extreme degree of swelling of the foot and ankle, with tense shining skin, occasionally extending upward upon the lower leg. Superficial blebs are often seen in these cases, developing at the points of pressure along the dorsum of foot and toes. If the discoloration is only moderate their contents are of a yellowish, serous nature, but in the more deeply cyanosed feet they contain a dark-red, often offensive, fluid. Ulcerations are likewise common at similar points, developing from ruptured blebs, easily infected and occasionally extending to such a depth as to expose the underlying bone. The toenails are often black, separating in course of time. In rare cases large blebs with offensive bloody contents may develop upon the backs and soles of the feet. These feet are very painful, preventing walking, tingling and burning to an extreme degree, especially at night and when exposed to heat. Rheumatic pains are felt in toes and ankles. Occasionally pain, pricking and constant, extends up the leg to the knee, even to the thigh. After all other symptoms have subsided this pain may persist. Tenderness of the calf muscles accompanies it. Anesthesia and hyperesthesia are also present: sometimes the one predominating, sometimes the other. In an anesthetic foot there is often a deep tenderness, elicited by firm pressure. One other feature is often noted in these more severe trench-feet—muscular paralysis. In the more pronounced cases the patient is unable to move the foot. Usually only the toes are affected, and the big toe is held in extreme dorsal flexion.

In these more severe types of trench-foot gangrene at times supervenes. As a rule it occurs at the areas of bony projection upon the dorsum of the foot,—small, rounded superficial islands of blackened slough; or upon the joints and tips of the toes, involving the nail. It is more often dry than moist. At times the first and second phalanges of the toes are involved. In the most severe cases, fortunately few in number, the whole foot is involved in a massive gangrene extending to the ankle. Cases of infection with gas bacillus and tetanus have been reported.

After considering these types of trench-foot, the query is natural as to how they differ from the types of frost-bite which are seen in civil practice in cold climates. The chief feature is that they do not occur when the temperature is low enough to freeze of itself. The absence of synchronous frost-bites of fingers, noses and ears is noticeable. One case of involvement of the hand and forearm is reported by M. Tuffier in the "Bulletins et Mémoires de la Société de Chirurgie"—that of an officer who, after being shot in the chest, fell to the bottom of the trench, lying for several hours in cold water and mud with his arm beneath him. His forearm and hand presented signs and symptoms quite like those of trench-foot. To be sure, the majority of the cases of severe gangrene seem to have occurred when the temperature was considerably below zero. Yet cases of massive gangrene have been observed when there was no frost. The greater number of the cases of trench-foot has occurred when the temperature was not much below freezing-point. In a dry climate with ordinary clothing this would not be enough to cause frost-bites.

The weather conditions along the western front during the last two winters have been very bad, with copious rainfall, occasional snowstorms and a chill, sunless air. The front-line trenches, where the stress of battle is greatest and it is impossible to provide adequate flooring, have been filled from ankle to thigh with water, mud and slush, cold from the melting snow and ice. In these must the soldier stay for days, soaked to the hips, often forced, from fear of exposing himself to the enemy, to crouch in painful positions with a minimum of activity. He wears a heavy, unyielding, poorly-fitting pair of boots, often with two pairs of woollen socks for warmth, and cloth puttees wound about the leg from ankle to knee. As the shoes and puttees become wet they contract upon the leg and foot, impeding the circulation. Venous stasis results, with oedema and the numbness and tingling which is commonly experienced in ordinary cases when the circulation is temporarily shut off. If the exposure continues, the swelling increases until blebs and ulcerations develop from pressure, or until the circulation is so shut off that gangrene results. Thus it appears that several factors contribute to the condition: (1) cold,—not enough to freeze of itself, but enough to reduce the resistance of the tissues through chilling; (2) wet,—accentuating the chilling effects of the cold and interfering with the circulation by causing shoes and puttees to swell; (3) inactivity,—often in cramped positions, conducive to a sluggish circulation not only from lack of exercise but from constriction of the vessels in the popliteal space. It is noticeable that officers, who not only have more protection from the wet but must move about more than the private, are much less afflicted with trench-foot.

It is impossible to dogmatize concerning the changes which take place in the tissues, as naturally no material is available for examination. The condition seems to be fundamentally physical, due to circulatory disturbances. The initial effect is probably that of impeded venous circulation. Exposed to continuous cold and wet the tissues lose their elasticity. The vessels dilate, with resulting congestion. Oedema follows, increasing until it is restrained by an unyielding boot. Blebs and ulcers develop at the points of greatest pressure. If the oedema under pressure continues, the arterial blood stream is choked off, with resultant necrosis. At certain areas, occasionally over the whole foot, the sensory nerve endings are so compressed as to destroy them or inhibit the transmission of impulses. In areas of lesser pressure, they are so traumatized as to become hypersensitive, with resulting hyperesthesia. The latter, together with the pains of foot and leg, may be due to trophic disturbance of the nerve trunk: a neuritis. One case is on record in the "Bulletins et Mémoires de la Société de Chirurgie," complicated by severe pains in the calf muscles, in which the observer, Pl. Mauclaire, found the posterior tibial nerve trunks indurated and enlarged to twice and three times their normal size. The various types of trench-foot seem but different stages in a progressive pathological change arising from physical causes.

The treatment of trench-foot is simple, consisting of elevation, protection from heat, massage with oil and sedatives. With the feet raised upon pillows the greater part of the oedema subsides in 2-3 days. In the majority of cases, with complicating hyperesthesia, coverings of any sort, exposure to heat, even slight currents of air, give rise to intolerable pricking and burning, most severe at night. Hence the feet are placed below a covered cradle, open at one end for coolness. In certain of the cases of generalized anesthesia, heat is well tolerated. As a rule the subjective symptoms are relieved by massage with olive oil. It must be gentle at first, becoming more energetic from day to day. Gradually the blood-vessels recover their tonicity, and the congestion and residual oedema disappear. Applications of electricity seem to be beneficial. If the pain persists, various sedative applications may relieve it, such as a mixture in equal parts of the liniments of aconite, belladonna and chloroform; or of acetate of lead and tincture of opium ℥iv: ℥i in water to one pint. Occasionally the pain may be so persistent as to prevent sleep for several days. In such cases, morphia, codein and other sedatives must be administered. Under this treatment, of the cases not complicated by gangrene, the simplest will recover in about two weeks, the average in three weeks, while the most severe may linger on from five to seven weeks. In most of these cases, after getting up and attempting to walk, the feet will become congested and a little oedematous, with no recurrence of symptoms. In a few days, with active exercise, the congestion and oedema subside. The cases of gangrene are longer in recovery. As already mentioned, the gangrene is usually dry, in which case one waits until a line of demarcation has developed and excises or amputates. Certain of the cases of moist gangrene, particularly those involving much of the foot, present urgent and fulminating symptoms, requiring immediate amputation.

The prevention of trench-foot is a matter of some importance. It has been found impracticable to keep dry the front-line trenches in the low-lying districts during the rainy season. Various kinds of long waterproof boots have been considered, but are objectionable in that they impede the activity of the soldier by their weight and bulk. Frequent applications of oil have been found useful. The measure of greatest benefit seems to be a shorter period of duty in the trenches, with more frequent relief. During the first winter of this war the soldier was compelled, through lack of reserves, to stay in the trenches for much longer periods than during this past winter, with the result that trench-feet were much more common and of more severe type.

In conclusion a few cases are given representing the various types of trench-foot:

Case No. 1.—*Simple type.*

Lance-Corporal R.W.L.P. Aged 33. 17th Royal Fusiliers.

The patient had been in the trenches four days, standing in water knee deep, soaked to the hips. It was snowing part of the time, and at night was cold enough to form a thin coat of ice. Patient wore cloth puttes and regulation army boots and one pair of socks. Unable to move about much. On the fourth day his feet began to grow numb, with onset of severe burning and tingling. Pain developed at the bases of the fourth and fifth toes of both feet. In two days he was unable to stand. Shoes removed at dressing station. Feet much swollen, purple in color. Sent to field hospital, where he remained five days. Swelling rapidly decreased, but discoloration with burning and tingling persisted. Tingling pain extended up back of leg to mid-thigh. On admission to the A. W. W. H. the dorsa and toes of both feet were blue and cold. No swelling. Anesthesia to touch and pin-point over both big toes, with diminished sensation over other toes and dorsa. All joints freely movable without pain. No paralysis. Considerable burning of the feet with slight persistent pain in calf muscles. The usual treatment of elevation, protection from heat, and massage with oil was instituted. In five days the burning had ceased, color normal. On eighth day patient was walking without pain, but with reappearance of slight oedema and congestion. Numbness of big toes persisted. Discharged to convalescent home on 17th day, with numbness of big toes, slight congestion. Wearing heavy boots without pain. No pain in calf muscles.

Case No. 2.—*Pale foot with severe subjective symptoms.*

Private T. L. Aged 22. 6th Connaught Rangers.

Patient had been in trenches four days, water to the knees, freezing at night. Wore cloth puttees, army boots and two pairs of socks. Cramped position. Feet began to swell and grow numb. Severe pain in toes and ankles. In three days unable to walk. Boots cut off at dressing station. Feet swollen but not discolored. Severe tingling pain in legs with tenderness of calf muscles. Three days in field hospital. On admission to A. W. W. H. feet not discolored, more pale than normal. Cold to touch. No swelling. Skin rough and dry. Big toes and dorsa of feet anesthetic. Diminished sensation in other toes and soles of feet. External borders extremely hyperesthetic. Severe tingling of heels, external borders and at bases of big toes. Pain in legs had ceased. No paralysis. Routine treatment for three days, during which pain was most severe. Patient unable to sleep, requiring morphia. On 4th day alternating applications of lead and opium, and liniments of aconite, belladonna and chloroform were begun. In 24 hours there was marked relief. In 10 days there was only occasional burning along external borders of feet. Patient walking on 16th day. Development of slight puffiness and congestion. Slight pain in walking. At end of 5th week patient was ready for discharge to convalescent home. Walking without pain. Slight numbness of both big toes. No congestion or swelling.

Case No. 3.—*Bleb formation with eventual gangrene.*

Private W. M. Aged 35. R. A . M. C.

On sick list 10 days before admission to A. W. W. H. with usual history. Left foot not involved. Right foot presented large blebs with bloody contents along outer side of dorsum, partly involving the sole. In seven weeks the outer border of the foot had sloughed away, revealing a necrotic fifth metatarsal, bare of periosteum. This was excised with the little toe. Wound healed by granulation. Patient invalided out of the service after four months in hospital.

CASE No. 4.—*Gangrene of toes.*

Private M.D. 2nd Royal Scots.

Admitted to A. W. W. H. January 4th, 1915. Usual previous history. On sick list five days before. Both feet were discolored over toes to dorsum of foot. An irregular line of anesthesia extending half-way up the dorsa. Multiple blebs on both feet. By March, 1915, all the toes showed dry gangrene with sharp lines of demarcation. All toes were amputated. Subsequent removal of tips of first metatarsals for necrosis. Patient invalided out of the service August 2d, 1915.

Case No. 5.—*Gangrene of foot.*

Private F. W. C. 3rd Devons.

Admitted to A. W. W. H. on March 3rd, 1915. Previous history as to nature of onset incomplete. On sick list Dec. 28th, 1914. While in France he had a Chopart's amputation of right foot, also amputation of all toes of left foot.

Invalided out of the service July 22, 1915.

There are many cases similar to the last three which must be invalided. Their country not only loses their services, but incurs the burden of their pensions. It is manifest that trench-foot, though often a minor affection, constitutes a serious problem for a nation at war.

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ILEOSTOMY FOR ILEUS AND GENERAL PERITONITIS.

BY JOHN W. LANE, M.D., F.A.C.S., BOSTON.

INTESTINAL obstruction and the ileus resulting from peritonitis are still presenting an extremely high mortality. Statistics presented within the past few years (McGlannan in 1913 and Deaver in 1915) show the mortality from intestinal obstruction to be over 50%, and in advanced obstruction, almost 100%, in spite of any treatment offered.

Since Fowler suggested the upright position, and Murphy inaugurated continued proctoclysis to maintain the body fluids, a considerable advance has been made in the treatment of diffuse peritonitis, and cases which were considered hopeless fifteen years ago offer, in a large percent, recovery. There remain, however, the cases of general peritonitis and advanced acute obstruction which still die, and this paper is a plea that greater consideration be given these cases.

We must first consider the cause of death in the advanced obstructions. Owing to the careful investigation of the surgical physiologists some advance in our knowledge has been made.

In the first place, it was discovered that the higher up in the intestinal tract the obstruction took place, the more rapidly death ensued, and especially is this true when the obstruction is produced in the duodenum. Many experiments have been done on this subject. In June, 1912, Hartwell and Hoguet reported at the annual session of the American Medical Association the results in a series of obstructed dogs. They say:—"Dogs with complete obstruction in the lower duodenum, if untreated, will live only a few days; they will vomit large quantities, and the urine shows marked abnormalities compared with a dog suffering from simple starvation. If a quantity of normal saline solution slightly in excess of the total loss of water in the urine and vomitus be given daily by hypodermoclysis, the dogs promptly return to the condition of a dog undergoing simple starvation. Dogs so treated have lived in excellent health for three weeks, showing at the end of that time every indication of living much longer if treatment were continued. The important element, therefore, in the development of symptoms seen in intestinal obstruction in dogs is the excessive loss of water due to vomiting. The symptoms in high obstruction are those resulting from tissue disintegration following this loss. Replacement of water cures the symptoms and prevents death over an astonishingly long period. If strangulation complicates the obstruction, the above facts do not seem to be true."

Whipple, of Baltimore, in a series of experiments in which a segment of duodenum was obstructed came to the conclusion that dehydration may be important but that there is a toxic substance present which causes death.

Murphy and Vincent in a series of similar experiments concluded that this toxic substance was probably not a chemical poison, because the supernatant filtrate was not toxic.

Draper, in a study reported in 1914, stated that this toxic substance was probably formed as a result of injury to the cells of the intestines. He also found, if epithelial cell emulsion of normal dogs was fed to dogs experimentally obstructed at the duodenum, that life was prolonged for some considerable hours over that of the control dogs. In 1916, Draper reports that the series observed, in the past year and under like conditions, fails to show any prolongation of life from this treatment. In fact, he says that the average duration of life was less than in the control, thus casting doubt on the further value of this working hypothesis.

Sweet, while agreeing that a toxin is formed in the duodenum, believes that the pancreas in intestinal obstruction probably also produces some toxic activity; and he has recalled the clinical resemblance between acute pancreatitis and duodenal obstruction.

Draper's latest conclusion is that the cause of death in intestinal obstruction is still unknown, but that all recent studies point to some aberrant activity of duodenal and pancreatic cells. He believes that the old hypothesis that the toxin is of bacterial and food decomposition origin may be looked upon as discarded. Dehydration, he feels, is of no greater importance in this than in other toxemias. He seems to think that there is an important ratio between the toxic epithelium and its digestive power, the toxicity varying inversely with the digestive powers; and in accord with this thought, McKenna, of Chicago, states that he has operated successfully eight human cases of acute obstruction by performing jejunostomy, preferably in the upper part of the jejunum.

Sweet, in a paper on intestinal obstruction, states, "We are aware that surgery already possesses a plethora of theories; but as long as a theory is given its proper valuation as a theory, as a working hypothesis, and is not accepted until supported by such an array of facts that the theory has itself become a fact, these theories offer the only means of progress in a field where so little is known."

These are the various, experimental conclusions up to the present time, and until it is possible to isolate a definite toxic substance, no treatment by antitoxin or vaccine can offer much hope. The clinical fact remains, however, that unrelieved intestinal obstruction is an invariably fatal condition irrespective of the cause, and to become non-fatal it must be embattled fearlessly.

Let us now turn our attention to the cause of death in acute general peritonitis. As the patient approaches fatal termination, the picture, indeed, is practically the same as at the end of intestinal obstruction. The abdomen is distended and, in the latter stages, not very spastic. There is likely to be continuous and even fecal vomiting, all of these increasing until death finally ensues as a result of peritoneal infection and ileus. But if the intestine can be drained rapidly of its contents it is remarkable how quickly the patient recovers, showing that the main factor in a general peritonitis also is the toxic material produced in the small intestine. Another condition almost as fatal, if uncontrollable, and of great interest to all laparotomists and, indeed, to all practitioners in whose patients it has occurred, is post-operative intestinal paralysis; a condition which may arise after any laparotomy, no matter how simple. Post-operative ileus is towards its termination the same as the two preceding types.

From an experience of many cases of ileus extending over a period of twelve years, I have reached the conclusion that something better can be done than is now done. I cannot feel otherwise from clinical experience than that death in these three groups is due mainly to toxemia from retained intestinal products, whether these products be decomposed food products, degenerating intestinal or pancreatic cells, or increased bacterial action. It seems to me, therefore, that the logical treatment in these advanced cases of ileus is drainage of the intestine. This being the case, the great problem comes as to what is the best method of accomplishing this end. Some surgeons advocate a caecostomy, others an enterostomy, and McKenna, as we have seen above, advocates a high jejunostomy. Handley advocates an ileo-colostomy rapidly performed, the anastomosis taking place at the mid-colon; and, in addition, a caecostomy. Other writers advocate a rapid emptying of the bowel by threading it upon a long glass tube. This is especially recommended by Moynihan, who however, is not altogether enthusiastic about its virtue. It has been my experience that enterostomy has been occasionally successful if it were the only operative measure performed. If the gut were opened at the time of operation to drain off the gas and fecal contents, with or without a subsequent enterostomy, the results have been fatal; whether the operations were performed for an acute obstruction per se, or ileus occurring in the course of a peritonitis or after laparotomy.

McKenna seems to have much logic on his side in his support of high jejunostomy when we consider the cause of death in these cases; and his eight successful cases are a striking argument for his method.

Handley's method of ileo-colostomy followed by caecostomy seems to me a very heroic procedure. With it I have had no experience.

Moynihan's method cited above has given me no successful result. But I have observed that a permanent colostomy performed according to the method so clearly described by him in his "Abdominal Operations" has never failed to drain the intestinal contents. It, therefore, has suggested itself that a similar method applied to the ileum in cases of acute intestinal obstruction and in cases of ileus occurring in the course of a general peritonitis, would also be successful in draining the intestines.

In cases of acute general peritonitis due to a ruptured appendix, my method of operative procedure is as follows:—

A rapid incision through the right rectus muscle or a McBurney, whichever can be performed more rapidly, is made. If the appendix cannot be removed in less than two minutes it is permitted to remain. A drain is placed to the pelvis and loin and a loop of small intestine, the most easily accessible, is drawn out of the wound and held outside the skin, which is closed snugly but without constriction around the loop and the wick. In the course of one hour, this bowel, through the formation of lymph exudate, is absolutely sealed off from the rest of the abdominal cavity. If, at the end of six hours there is persistent vomiting and bowel movements are unsatisfactory, an opening is made in the exposed loop of gut. If free flow of that intestinal contents does not take place at once, it is started by irrigation with salt solution.

The action of this loop is illustrated by the following case:—

Charles G., ten years of age. On August 25th this boy was operated at a private hospital for an attack of acute appendicitis of less than twenty-four hours' duration. A McBurney incision was made and the appendix was found tense, swollen, slightly injected, with no fibrin on its surface and no evidence of gangrene. It was removed without incident and its stump was inverted. The wound was closed in layers with plain catgut. The patient made an uninterrupted convalescence until four days later when he began to have abdominal pains and vomit considerably. He vomited all that night; and the next morning, when seen with his physician, Dr. Sweeney of Atlantic, at 9.30, he then presented a pinched, drawn, peritoneal facies. The abdomen was slightly distended in its lower half, and there existed considerable, general, abdominal spasm. A diagnosis of peritonitis was made and the patient was re-operated upon at once. The wound was reopened; it was septic and the abdominal cavity was full of pus. Wicks were inserted for drainage and the wound left wide open. Fowler's position and proctoclysis were instituted. The next morning the abdomen appeared more distended in the epigastrium and there had been no cessation of vomiting, which was now fecal. A loop of small intestine about four inches long was protruding from the wound; it evidently having exenterated on account of emetic straining; it was greatly distended and it was sealed off from the cavity. Without anesthesia, a longitudinal incision 1 1-2 inches long was made in the loop with the immediate escape of gas and fecal matter. The parents were very anxious to remove the boy to his home, a distance of ten miles, and on account of his piteous crying, a reluctant consent was given and the patient was taken home to die. On his arrival home the boy was in a very bad condition but rallied after stimulation. There was a constant faecal discharge from the opening; distention disappeared and the boy made a fair convalescence. On September 25th the boy was seen with his physician and at that time the presenting loop of bowel had apparently diminished in size, it presented practically a complete eversion of its mucous membrane and there had been no movements per rectum for a week. The loop appeared to be dimpled at either end as though it had been "exvaginated." On September 30th, under ether, the presenting loop of bowel was cleaned carefully with salt and water and alcohol, the field being made as sterile as possible. The everted mucous membrane was freed from its marginal attachment to the skin wound and the lumen of the bowel restored by a double continuous Lembert stitch. The spur of the bowel was then freed and the eventrated loop was restored within the abdominal cavity and held there with an iodoform gauze pack; the skin wound was refreshed and closed, except at the site of drainage, with silkworm gut. October 14th, the patient was discharged from the hospital, the wound almost healed save for a small granulating area. There has been no fecal discharge since the last operation. I have had two other cases of a similar nature previous to this one—one, a school teacher, twenty-two years of age, and the other a policeman, forty-eight years of age. In the case of the two latter it was not necessary to perform any secondary operation for closure of the fistula, as the bowel retracted into the abdominal cavity and closed spontaneously. I have also seen the bowel retract and disappear from view in one case of so-called permanent colostomy.

A "semi-permanent" ileostomy is the method which I use for the ileus of peritonitis, and it is also the method which I intend to use in cases of post-operative ileus when it becomes evident or even doubtful that other methods of treatment are going to fail. In acute intestinal obstruction, the technic must be varied somewhat according to the cause of the obstruction but there is one feature which must be borne in mind, that in these cases it is absolutely necessary for a recovery that the bowel drain, or empty itself per rectum, and if it does not, it must be made to drain through an enterostomy, and the surest and most certain method of draining the bowel is by an ileostomy performed according to the method which I have described above. Other methods of enterostomy I know from bitter experience often fail to drain, but I do not believe that an ileostomy, performed by this technic which I advocate, can thus fail, because it is almost impossible for even the merest tyro to perform the operation improperly. The incision of the intestine can be done by a house officer, and the opening, as a result of this method, is plainly visible at all times, making it extremely easy to start the flow of the intestinal contents by siphonage.

It may be urged as an objection to this type of enterostomy that it requires a major operation for its closure. I have, however, seen three of these cases, strange as it may seem, close spontaneously. I have been greatly surprised to find with what ease it was possible to close one of these ileostomies and return the obtruding bowel within the abdominal cavity. It is only necessary carefully to suture the opening in the bowel and close it in the same manner as is done in pyloroplasty, and when this has been done, very carefully to separate the eventrated loop from its marginal adhesions and return it to the abdominal cavity, and close the wound above it except for a small gauze drain.

I have found that the immediate opening of the bowel at the primary operation is dangerous, because it is almost impossible to perform it without the danger of infecting an already sick peritoneum; but if the bowel is permitted to remain outside the wound for one hour only before incision, this danger no longer exists, because, as I have pointed out above, a lymph exudate has sealed it from the peritoneal cavity. It is practically impossible, in my experience, to place a suture, however fine, into a greatly distended gut without considerable leakage. The intra-abdominal pressure from the distended loops will hold the external loop outside and prevent its withdrawal. Larger exit of bowel from the wound than the required size can be prevented by the judicious application of wire gauze over sterile gauze. When an opening is made in this way it is always accessible and the proximal or the aboral segment can be easily irrigated.

If this paper can stimulate the interest of surgeons in advanced cases of intestinal obstruction and general peritonitis, its purpose will have been achieved. In lieu of something better I believe the method to be worth a trial.

In cases of early post-operative ileus, at the suggestion of my colleague, Dr. M. J. Cronin, I have been using a culture of the Bacillus acidophilus with satisfactory results. The discussion of these cases, however, is reserved for a later paper.

In closing, let us remember the immortal Murphy:—"The best treatment of general peritonitis and advanced intestinal obstruction is operation before they exist."

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"CONSTITUTIONAL" VERSUS "LOCAL" SIGNS AND SYMPTOMS IN THE DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS.

By John B. Hawes, 2d, M.D., Boston.

The diagnosis of pulmonary tuberculosis in its early stages is at best a most difficult one. It is well, therefore, to crystallize our ideas on this subject, changing as they do as progress is made, and to take account of stock from time to time, to see on what signs and symptoms this diagnosis should be based.

Ten or fifteen years ago, the medical student, if he was taught anything in regard to incipient phthisis, which is extremely doubtful, was told that this condition was characterized by slight dulness, bronchial breathing, and râles at one or both apices. Perhaps some mention might have been made of cough and sputum or evening fever. Today, thanks to a vigorous educational campaign which has been carried on, the medical profession is far more alive to the importance of the early diagnosis of consumption than ever before. As a result of this, however, we are all beginning to ask ourselves on what grounds, or what group of symptoms, local or constitutional, we should base our diagnosis and institute treatment in cases where there is no sputum or where it is persistently negative.

Last year, Dr. Richard Cabot, at an informal meeting of physicians at the Massachusetts General Hospital, asked me to state what I demanded before making a positive diagnosis of incipient phthisis. I found his question a most difficult one to answer. A similar inquiry from a physician connected with a sanatorium about to be opened for incipient cases, awaits reply. The recently enforced law, requiring a tuberculosis dispensary for every town or city of 10,000 inhabitants or over in Massachusetts, has brought this question very strongly to the attention of the numerous physicians connected with these dispensaries whose duty it is to discover these early cases of consumption.

In order to obtain information on this subject I sent out a letter to about fifty doctors in this state, each of whom was, in some capacity or other, doing a certain amount of tuberculosis work. This list included the doctors at our four state sanatoria, at local tuberculosis hospitals, and the physicians in charge of the local tuberculosis dispensaries. In this letter I asked certain questions as to the relative value of "constitutional" signs and symptoms, including among these, family and personal history, fever, rapid pulse, loss of weight, strength and energy, night sweats, etc., as compared with "local" signs and symptoms, such as cough, sputum, hemorrhage, dulness, râles, altered voice and breath sounds, pain, etc. A study of the replies to these questions, coming from a group of men including tuberculosis specialists and general practitioners, is of interest.

Question 1. Do you get most information from the "constitutional" or "local" signs and symptoms?

Of the 46 doctors who replied to this question, 31 stated that they had more information from "constitutional," and 15 from "local" signs and symptoms. Many, of course, qualified their answers in one way or another, as in the following reply:

"I feel that this question divides patients into two classifications, infants and young children, and adults. In infants and young children, I believe we can get the most information from constitutional signs and symptoms. In adults, the individual case must answer the question. I feel very strongly that we have a great many cases diagnosed as tuberculosis from constitutional symptoms alone, and local signs and symptoms alone, which if studied longer and more carefully would prove to be some condition other than tuberculosis. We have all of us seen cases of hyperthyroidism, incipient Addison's disease, anemias, and leukaemias diagnosed as probable cases of early tuberculosis from just the constitutional signs and symptoms which you mention. On the other hand, we see bronchiectases, sub-acute bronchitis, syphilis perhaps, and non-tubercular areas in the lung which are diagnosed as positive from the local signs. If the question must be answered, I feel rather that the weight of information is perhaps on the side of the constitutional symptoms."

Question 2. Which group of signs and symptoms is most often neglected?

Of the 48 replies, 36 unhesitatingly were of the opinion that the constitutional signs and symptoms were most often neglected. Five were evidently in doubt, and of these, one replies that "constitutional symptoms are neglected by patients, local symptoms by physicians." The following severe arraignment of certain phases of medical practice is of interest, even if somewhat exaggerated:

"Both are sadly neglected. Of the two, unquestionably the family history plus the early history I feel are more often neglected than these signs and symptoms which you list under constitutional or local signs. In childhood and early adult life, I feel that it is most important to go carefully into both of these (family history and history of early childhood). In cities like mine, and I presume Boston and other large cities suffer the same curse, we have a group of medical men who seek appointment as so-called "society physicians." My experiences with this group of so-called practitioners is that they never take the time to go into the subject of constitutional symptoms carefully, and rarely ever remove the overcoat of the patient to determine local symptoms. Their treatment is small, nondescript tablets which they buy by the thousand lots, and the patient is told if he does not feel better within two or three weeks to come in again. Without having any number of statistics to prove the following statement, I believe that most cases of incipient pulmonary tuberculosis go to these men before ever seeing a careful physician. And for this reason I am thoroughly convinced that here we shall never be able to get hold of all our incipient pulmonary lesions in their early stages until this class of physicians are either legislated out of office, or else instructed in the absolute necessity of careful history-taking and physical examination. I feel very strongly on this subject. Again, if the question must be answered as to which of the two groups is the more frequently neglected, I believe that in this class the constitutional signs and symptoms are more often the ones to suffer. But they suffer because the busy practitioner in his office often feels that the patient is impressed by having the stethoscope pressed against his chest, although he may not learn anything by doing so."

Question 3. With negative or nearly negative chest findings, would you make a definite diagnosis on constitutional signs and symptoms alone?

The replies to this question were evenly divided, 23 saying "yes" and 23 "no." Of those who said "yes," two qualified their answers by stating, "If these signs persisted for over a month I would make a *tentative* diagnosis," and two by stating, "Yes, if the chest signs were *nearly* negative but not if entirely so." Of those who said "no," two said that they would call such a case "pre-tuberculous," and eight that they would consider it "probably one of tuberculosis and would keep it under supervision and institute proper treatment." One very thoughtful answer to this question was as follows:

"This is a difficult question to answer. If, after careful study, through the process of exclusion, you can feel confidently sure that you have eliminated all other possible causes for the constitutional symptoms present, if a subcutaneous tuberculin test is typically positive, I would make a diagnosis of tuberculosis. If the tuberculin test were negative, I would make the diagnosis of probable tuberculosis, inform the patient of the diagnosis, and treat the individual as a tuberculosis patient."

Question 4. Would you make a definite diagnosis on signs and symptoms referred to the lungs alone, if the history and constitutional signs were negative?

Out of 46 replies, 28 were in the affirmative. Five said "yes" but *only if the signs in the lungs persisted.* One doctor said "yes" but added that he would keep the patient under observation and be ready to "hedge" if necessary; and one that he would be on the watch for syphilis of the lungs. Of those who said "no," one stated that such a process might be arrested tuberculosis and that "active tuberculosis could not exist without constitutional signs and symptoms." This statement, coming from a well-known sanatorium superintendent, is of especial interest, but is one on which there would be much difference of opinion. One doctor said he would make only a provisional diagnosis under such conditions.

Question 5. In cases with a negative or absent sputum what do you demand before you are willing to make a definite diagnosis of incipient pulmonary tuberculosis?

The great majority of replies to this question were along the lines that I expected—namely, that in order to make a definite diagnosis of incipient pulmonary tuberculosis in a case with negative or absent sputum, some signs and symptoms, both local and general, should be present and that such signs and symptoms should persist. Some of the replies were of especial interest. Among them were the following:

"If we want to get the early cases, we should not demand a definite diagnosis."

"I would make a definite diagnosis of tuberculosis with a negative sputum just as quickly as with a positive sputum. * * * The public is misled by a doctor saying 'his sputum is negative'—they say 'why he has not got consumption, then.' * * * Keep at the sputum, x-ray, guinea-pig, but make the diagnosis first."

"Enough constitutional and local signs to preclude a possible doubt. In every suspicious case where it is impossible to be sure, I think that the patient should be informed of the question of doubt and treated in general as a tuberculosis case."

"Persistence of constitutional symptoms and some chest signs."

"Most of the constitutional signs and symptoms with local signs."

"Guinea-pig inoculation and a positive tuberculin test."

"Slight physical signs with a characteristic temperature and pulse."

"With two or more constitutional signs and symptoms together with a definite area of impaired resonance in the lungs, with or *without râles* [italics mine—J. B. H.], I should not hesitate to make a definite diagnosis of tuberculosis."

My own replies to these questions were fairly definitely formulated before I sent out my letters. To confirm them, however, I went over 200 consecutive cases of early or fairly early tuberculosis, each with negative or absent sputum, from my own records, in order to find out on what group of signs or symptoms, singly or collectively, I had based my diagnosis.

To the first question as to the relative importance of "constitutional" versus "local" symptoms, I felt very strongly that far more information was to be had from a careful study of the former—the constitutional group—rather than the latter. Likewise, in reply to the second question, I felt that the same group was a fearfully neglected one. In answer to the third and fourth questions, as to whether I would make a definite diagnosis on constitutional signs or on local signs alone, I should have said that I had made such diagnosis frequently in each instance, but far more often on constitutional evidence rather than on local signs alone, if one might exclude the large group of hemorrhage cases. Much to my surprise, I found that this was not the case. There were also some other surprising facts shown by this analysis. There were 87 cases of hemorrhage out of the 200. Excluding these, I found that I had based my diagnosis in 31 cases on purely local signs, and in only 26 cases from the history and constitutional signs and symptoms, while in 136 patients the diagnosis was based on both local and constitutional signs.

Chest signs, such as dulness, râles, etc., were present in only 131 cases out of the 200. This may mean that in a certain proportion, owing to a recent hemorrhage, I did not make a detailed examination, but even discounting these cases, it was surprising to me that such a large number were without signs of moisture or of consolidation in the lungs. A fact still more surprising to me was that my records showed that 107, or 53 per cent. of these patients denied having had any cough or sputum! Even in incipient tuberculosis we have come to look at a cough with or without sputum as such a constant phenomenon, that this high percentage without cough appears to me remarkable.

What conclusions may be drawn then, in regard to the diagnosis of incipient tuberculosis from the evidence furnished by this group of Massachusetts physicians, each more or less intimately connected with tuberculosis work, as well as from these 200 patients of my own, who, as by far the greater number were sent to me in consultation and all were seen at my own office, were probably scrutinized with considerable care?

In the first place, it is clear that no hard and fast ruling can be made as to the diagnosis of early pre-bacillary tuberculosis. Each case must be considered on its own merits, and the signs and symptoms present, whether constitutional or local, carefully weighed and compared with those that are not present. In a certain number of cases, however, as shown not only from my own records but from the written opinion of a fairly representative group of physicians in this state, a definite diagnosis can and should be made in the absence of either constitutional or local signs and symptoms. In the vast majority of instances, a combination of both will be found present after careful study.

In regard to cough with or without sputum, a combination considered almost essential to the diagnosis of tuberculosis in any stage, my own cases show the remarkably high proportion of 107 out of 200 cases, or 53 per cent. apparently without either cough or sputum. Perhaps this high figure is only a coincidence, while in addition, it is evident that a considerable number without history of cough or sputum were hemorrhage cases whose chests were only superficially examined on this account. I believe, however, that this large group simply goes to show that not even what were considered the most classical earmarks of consumption are necessarily present in its early stages. This same point is emphasized by the fact that out of 200 cases there were 69, or 34.3 per cent. without local signs in the chest such as dulness, altered breath or voice sounds, or râles. The average fourth year medical student, if he has any clear idea at all in his mind as to what constitutes incipient pulmonary tuberculosis, certainly includes in it a history of cough and sputum, and certain signs in the lungs, such as dulness, altered breath sounds, or râles. That these were absent in over one-third of 200 patients is interesting and instructive.

The most important point, in my opinion, to be gathered from the experience of this group of physicians as expressed in their replies to my questions and from a study of the 200 cases from my own records, is the necessity of putting entirely out of one's mind any preconceived picture as to what form incipient pulmonary tuberculosis should take, or of any definite group of symptoms, local or general, it should possess. Hemorrhage may or may not be present; cough and sputum are not necessary accompaniments; signs in the lungs may be lacking; the temperature may be high or subnormal; a rapid pulse is not always present, nor is a history of loss of weight or strength or energy always to be obtained; in fact, no one or no two signs or symptoms are essential to a correct diagnosis.

Common sense, patience and painstaking thoroughness on the part of the doctor are the true essentials in arriving at the truth. It is more what the physician has in his head, and less what the patient has in his lungs on which the correct diagnosis and the patient's life depends. The stethoscope used less and the thermometer and common sense used more, would vastly better the present state of affairs, while of still greater benefit would be the imparting of these facts to our medical students who now have to wait until sad experience and unnecessary tragedies in the early years of their practice have taught them these essential points.

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MORPHINE-ATROPINE, PITUITRIN AND ETHER IN OBSTETRICS.

By John F. Martin, M.D., Boston.

Any method, in itself safe, which will alleviate the suffering and promote the termination of labor, is an aid both to the accoucheur and the parturient woman, particularly in cases where, for one reason or another, delivery is delayed.

Normal delivery ensues when labor terminates without accident to mother or child, prolonged delay, or instrumentation.

As labor is attended with concomitant pain, and often delay incident to disproportion, insufficient uterine contractions, rigid soft or bony parts, relief given to the patient is welcomed by her.

Dulling the sensory mechanism of the gravid uterus and overcoming cervical rigidity with such drugs as morphine, bromides, chloral, veratrum, and ether have their place, and their indications are known to the usual obstetrician. In easy, or purely normal deliveries, they are often made use of as in the fore-mentioned indications, and are of help, though sometimes a hindrance if unguardedly given.

The vogue of "twilight sleep," promulgated through press, home, and pulpit by the adherents of the morphine-scopolamine method of obstetrical treatment has received its numerous knocks from the advocates of conservative and safe therapeutics.

Allow a puerperal woman to become acquainted with a method which will obtund the sensation of pain, she is likely to mention the desirability of its use to her physician. It is for him to choose a procedure without endangering the safety of mother or child.

The increased risk of the "twilight" method is sufficient to make its use unappealing when the physician's armamentarium contains such aids as morphine, pituitrin and ether. The marked susceptibility of some women to morphine-scopolamine medication, due principally to the effect of scopolamine, should deter one from too often using it, if at all.

It is the inherited right of every parturient woman to be given the most skillful, considerate, and mitigating attention by her physician, free from the inconsiderate use of forceps—often the result of impatience.

Enough has been written about the physiological effect of scopolamine (hyoscine) to make the average physician conversant with its action. The objection to its use comes from its untoward effect upon both mother and child. Its depressing effect upon the respiratory centre tends to cause a lowering of the oxygen content of the blood, and such consequential calamities as asphyxia livida cannot be entirely due to the maternal depressive action of the compound, morphine-scopolamine, but also to fetal somatic inhibition.

It prolongs the second stage through its relaxing effect upon the uterine muscle, tending to post-partum hemorrhage; idiosyncrasy to the drug induces delirium, throat dryness, and muscular tremors, often alarming while they last. Why jeopardize safety for the sake of novelty?

A few women bear labor without much discomfort, others require a degree of sedation or relaxing, while the usual puerpera accepts pain amelioration with gratitude.

Morphine-atropine, the components of which are synergistic as well as antagonistic, produces sensory sedation, and given once or twice during first stage is of help, and the usual procedure.

The active principles of the posterior lobe of the pituitary gland, embodied in pituitrin and similar preparations, have demonstrated their usefulness in obstetrics through the physiological effect produced. The oxytocic action of pituitary products is due to the effect produced upon the uterine muscle in promoting contractions. Increased vascular tone, intestinal peristalsis, and diuresis are synchronous effects and assist the action of the principal means, as well as aiding to post-partum comfort.

Pituitrin should not be given during the first stage of labor, as it is distinctly contraindicated on account of the danger of uterine rupture, premature detachment of the placenta, and fetal strangulation. The time to give pituitrin is when the os is fully dilated, the presenting part engaged, with primary or secondary inertia, and the position anterior occiput.

From five to fifteen minutes after an injection of pituitrin is given subcutaneously, or intramuscularly, uterine contractions become more active, reaching the acme of continuous contraction. If the soft parts are not resistant, delivery is quite rapid; if resistance is met, the force behind must overcome it, then obstetrical ether, and holding back the head, prevents too rapid divulsion and laceration.

Some writers advise giving pituitrin when the head is engaged and the os admitting one or two fingers. It seems such procedure is permissible only in the absence of disproportion and soft os present.

Ether, given during the second stage of labor, induces a comforting degree of analgesia when inhaled at the onset of each pain; and, if the pains are strong, full anesthesia, as the head descends on the perineum, obtunds the consciousness so that, in many cases, birth is not felt at all. It is a far safer and better analgesic than the narcotic alkaloids during the second stage of labor.

Such an ideal result is often hampered by the relaxing of uterine contractions, due to the paralyzing effect of the anesthetic, particularly when a degree of inertia is present. Pituitrin given in such cases works well, hastens delivery, and allows full anesthesia during descent and birth of the presenting part.

A gush of blood often follows birth of child, due to “squeezing out” of uterine muscle. The after-birth is usually delivered more rapidly, and the patient goes through her delivery without untoward event.

Obstetrical ether alone, when contractions are good, is often sufficient; plus pituitrin, or similar preparations, when contractions are weak, and not contra-indicated, gives to them the deserving cognomen of “artificial forceps.”

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Clinical Department.

SUCCESSFUL USE OF INTERNAL SPLINTS IN A SEPTIC COMPOUND FRACTURE.

By Peirce Henry Leavitt, M.D., Boston,

Resident Surgeon, Boston City Hospital.

[From the Wards of the Second Surgical Service,

F. B. Lund, M.D., Chief of Service.]

This case is reported in order to register the successful use of a bone plate in a septic compound fracture of the lower leg, and the value of constant irrigation, and the subsequent use of direct sunlight.

The patient, male, 34, laborer, while unloading heavy pieces of machinery, was struck on the right lower leg by a piece of machinery and sustained a compound fracture of the tibia at about its middle, a fractured fibula and fractured astragalus. The wound on the skin was not a ¼-inch long.

There was also in this region a large abrasion of the skin, about the size of one's hand. The fracture was treated conservatively; that is, the skin cleaned and the edges of wound cauterized. One cc. of 2% iodine injected into wound, and pillow and side splints applied.

This apparatus was taken down each day, and the abrasion treated. In 4-5 days the abrasion presented a mild sepsis. The temperature was normal until the 12th day when it rose to 100.5, the next morning it was 103.8 and the region of the fracture had become distinctly swollen, reddened, and very painful.

Since the fracture was transverse and muscle pull made it impossible to hold the ends in apposition, since after open reduction, a complete plaster, even if bivalved, would not allow a careful dressing of the now septic fracture, with the large area of denuded skin, it was decided that a bone plate would be the best means of approximating the ends. It was decided, also, that in view of the extent of surface to be dressed, a fractional plaster was indicated. Also that if a fractional plaster was used a fastening of the ends of bone together with some internal splint would be necessary to prevent the ends riding by. There is enough "give" in one of these plasters to permit it riding by, unless the ends of the bone are fastened to one another.

Catgut and kangaroo tendon are absorbed too early to be used.

Inasmuch as the sepsis would undoubtedly be present for six weeks, more or less, and as the presence of a bone plate would not interfere with the formation of involucrum and consequent fairly firm union, a bone plating of this septic fracture seemed indicated and was tried.

A bone plate was applied and screw holes were drilled diagonally down to the point of fracture in order to insure drainage of the septic material, between the approximated edges of bone.

The leg was put up in a fractional plaster. (That is, a plaster above the injury and one below to the toes, both connected by iron rods III ⌒ III three in number.)

A crane was attached to the bed and the leg suspended about three inches above the bed. A constant irrigation of sodium citrate was maintained for 6 days and then a weak solution of iodine for 6 more days. A pan under the leg kept the bed from being constantly soaked. Figures 1 and 2.

The crane apparatus made it possible for the pa-

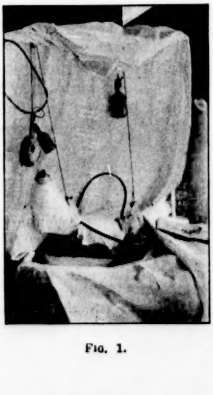

FIG. 1.

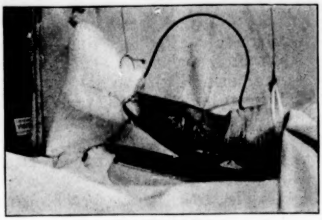

FIG. 2.
Showing apparatus in position.

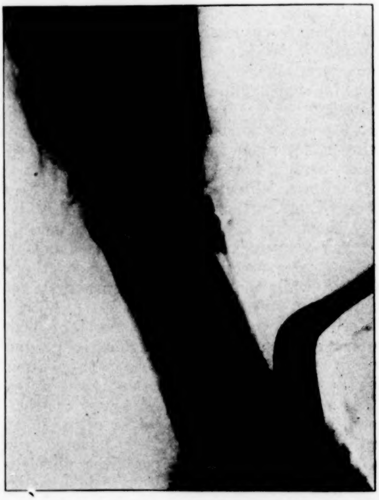

FIG. 3.
X-ray shows Parham band in place 40 days after injury, 27 days after first splint was applied.

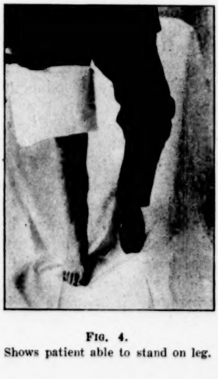

FIG. 4.
Shows patient able to stand on leg.

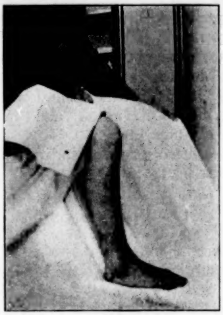

FIG. 5.
Shows slight posterior bowing.

tient to shift his position at will, with no pain to the leg. At the end of 27 days from application, the plate became loosened on account of sepsis in the screw holes; it was removed and a Parham band applied. Figure 3. There was at this time, about 2 x 1 inches of tibia exposed, and 3 x 4 inches of surrounding muscle. Exposure to direct sunlight was then started and kept up for six weeks.

Nine weeks after operation a large sequestrum was removed, and the skin area healed over more rapidly, without the aid of grafts. He was discharged from the hospital in May, with a light cast and crutches.

September, presents skin area flat and nearly healed in, and patient able to walk on foot. Lower leg shows slight posterior bowing. Figures 4, 5 and 6.

This case is of interest as showing the value of a bone plate in a case of septic compound fracture which was treated wide open. The ends of the fracture slid by so that they could not possibly be maintained by external apparatus without some form of internal splinting. In this case, at successive periods, both a Lane plate and a Parham band were used, together with the external apparatus to hold the fracture until periosteal bone had formed around the large sequestrum, which really consisted of the portion of the bone to which the plate and band had been applied. When this sequestrum came out, the periosteal bone was strong enough to maintain the leg in position. The case was a very trying one, and it looked to several of us who saw it as if amputation would be necessary, but persistent employment of every possible means of treatment finally got a good result. The exposure to direct sunlight also seemed to have a good effect in this case. It illustrates that there may be advantage in the use of internal splinting in certain septic compound fractures.

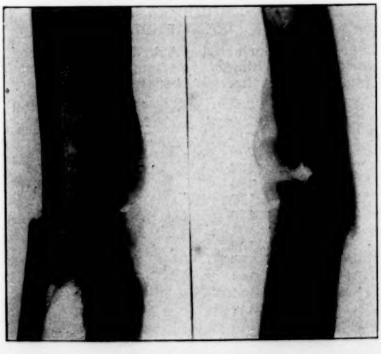

FIG. 6.
X-ray shows condition of bone in September, 6 months after injury.

Medical Progress.

PROGRESS OF SURGERY, 1916.

BY J. B. BLAKE, M.D., AND F. H. LAHEY, M.D.,
BOSTON.

THE CARREL TREATMENT OF SEPTIC WOUNDS.

THE great war has emphasized certain surgical conditions and methods of treatment with such colossal figures and statistics, and the material which it offers as yet so incompletely studied, that final conclusions on war surgery cannot at present be formulated. This is true of gunshot wounds in general, of gunshot fractures and of sepsis. In the latter, however, the work of Carrel must be carefully reviewed, since it has been described by at least one eminent American surgeon as the "most important advance in surgery since the introduction of the x-ray."

Dr. Carrel has been with Dr. DePage, at the hospital at La Panne, for many months. It has been recently rumored that he has left La Panne or at least turned his attention to other problems, regarding the treatment of gunshot wound sepsis as settled. It seems to be the universal testimony of competent medical observers, who have had opportunity to see his work, that it is settled—at La Panne. But, conditions there present do not exist in other war hospitals, and cannot be attained at once in a majority of civil hospitals. At La Panne, cases are received very soon after the wounds have occurred; and surgeons, assistants and nurses of the highest qualifications are numerous and permanent; and supplies are unlimited. From experiences distant from La Panne, it seems probable that Carrel's method must yet be simplified if the general practitioner throughout the world is to equal his results: the present difficulties seem to be,—first, the solution itself, not at all easy to make, owing to varying qualities of its chemical ingredients; second, the method of administration, requiring often irrigation of wounds at two-hour intervals for long periods; and third, the skin irritation which to a greater or lesser degree seems to be present at some time in a majority of instances.

The underlying principles of Carrel's treatment are opening the wound to its uttermost extent and completely removing every smallest atom of foreign body: thorough hemostasis; very light gauze packing, and a continued irrigation with Dakin's solution. Tubes are led to the bottom of the wounds, and definite amounts of the solution are introduced at intervals (usually two hours) until clean granulations fill the wounds from the bottom: these granulations organize with astonishing rapidity, and huge wounds heal soundly in days,—wounds which formerly would be expected to require either weeks or even months for final cicatrization.

So essential is it, however, that each slightest detail shall be followed exactly, that Dr. Carrel's own letter to the *Journal of the American Medical Association* is here reproduced *verbatim*:

CARREL-DAKIN SOLUTION.

To the Editor:—I have just read in *The Journal*, Oct. 7, 1916, p. 1108, a short note about the formula for Dakin's solution. I believe that the answer will not allow your reader to obtain the proper kind of solution. Therefore, I take pleasure in sending you the description of the technic which is used in my hospital for the making of the solution.

A. Carrel, M.D.,
Hôpital Temporaire 21, Rond-Royal, Compiègne, France.

PREPARATION OF DAKIN'S SOLUTION (DAUFRESNE'S TECHNIC).

Dakin's solution is a solution of sodium hypoclorite for surgical use, the characteristics of which, established after numerous tests and a long practical experience, are as follows:

(*a*) *Complete Absence of Caustic Alkali.*—The absolute necessity for employing in the treatment of wounds a solution free from alkali hydroxid excludes the commercial Javel water, Labarraque's solution, and all the solutions prepared by any other procedure than the following:

(*b*) *Concentration.*—The concentration of sodium hypochlorite must be exactly between 0.45 and 0.50 per cent. Below 0.45 per cent. of hypochlorite the solution is not sufficiently active; above 0.50 per cent. it becomes irritating.

Chemicals Required for the Preparation.—Three chemical substances are indispensable to Dakin's solution: chlorinated lime, anhydrous sodium carbonate and sodium bicarbonate. Among these three products the latter two are of a practically adequate constancy, but this is not the case with the first. Its content in active chlorin (decoloring chlorin) varies within wide limits, and it is absolutely indispensable to titrate before using it.

Titration of the Chlorinated Lime.—There must be on hand for this special purpose:

A 25 c.c. buret graduated in 0.1 c.c.

A pipet gaged for 10 cc.

A decinormal solution of sodium thiosulphate (hyposulphite).

This decinormal solution of sodium thiosulphate can be obtained in the market; it can also be prepared by dissolving 25 gm. of pure crystalline sodium thiosulphate in 1 liter of distilled water, and verifying by the decoloration of an equal volume of the decinormal solution of iodin by this solution. The iodin is prepared by dissolving 1.27 gm. iodin and 5 gm. potassium iodid in 100 c.c. of water.

The material for the dosage thus provided, a sample of the provision of chlorinated lime on hand is taken up either with a special sound or in small quantities from the mass, which then are carefully mixed.

Weigh out 20 gm. of this average sample, mix it as completely as possible with 1 liter of ordinary water, and leave it in contact for a few hours, agitating it from time to time. Filter.

Measure exactly with the gaged pipet 10 c.c. of the clear fluid; add to it 20 c.c. of a 1:10 solution of potassium iodid and 2 c.c. of acetic or hydrochloric acid. Drop, a drop at a time, into this mixture a decinormal solution of sodium thiosulphate until decoloration is complete.

The number of cubic centimeters of the hypochlorite solution required for complete decoloration, multiplied by 1.775, gives the weight of the active chlorin contained in 100 gm. of the chlorinated lime.

This figure being known, it is applied to the accompanying table, which will give the quantities of chlorinated lime, of sodium carbonate and of sodium bicarbonate which are to be employed to prepare 10 liters of Dakin's solution.

QUANTITIES OF INGREDIENTS FOR TEN LITERS OF DAKIN'S SOLUTION.

Titer of Chlorinated Lime.	Chlorinated Lime, Gm.	Anhydrous Sodium Carbonate, Gm.	Sodium Bicarbonate, Gm.
20	230	115	96
21	220	110	92
22	210	105	88
23	200	100	84
24	192	96	80
25	184	92	76
26	177	89	72
27	170	85	70
28	164	82	68
29	159	80	66
30	154	77	64
31	148	74	62
32	144	72	60
33	140	70	59
34	135	68	57
35	132	66	55
36	128	64	53
37	124	62	52

Example: If it required 16.6 c.c. of the decinormal solution of the sodium thiosulphate for complete decoloration, the titer of the chlorinated lime in active chlorin is:

$$16.6 \times 1.775 = 29.7 \text{ per cent.}$$

The quantities to be employed to prepare 10 liters of the solution will be in this case:

Chlorinated lime	154 gm.
Dry sodium carbonate......	77 gm.
Sodium bicarbonate	62 gm.

If crystalline sodium carbonate is being used, then instead of the 80 gm. of dry carbonate it must be replaced by:

Crystalline sodium carbonate. 220 gm.

Preparation of Dakin's Solution.—To prepare 10 liters of the solution:

1. Weigh exactly the quantities of chlorinated lime, sodium carbonate and sodium bicarbonate which have been determined in the course of the preceding trial.
2. Place in a 12-liter jar the chlorinated lime and 5 liters of ordinary water, agitate vigorously for a few minutes, and leave in contact for from six to twelve hours; over night, for instance.
3. At the same time dissolve, cold, in the five other liters of water the sodium carbonate and the bicarbonate.
4. Pour all at once the solution of the sodium salts into the jar containing the maceration of chlorinated lime, agitate vigorously for a few moments, and leave it quiet to permit the calcium carbonate to settle as it forms. At the end of half an hour, siphon the liquid and filter it through double paper to obtain an entirely limpid product, which must be protected from light.

Light, in fact, alters quite rapidly solutions of hypochlorite, and it is indispensable to protect from its action the solutions which are to be preserved. The best way to realize these conditions is to keep the finished fluid in large wicker-covered demijohns of black glass.

Titration of Dakin's Solution.—It is a wise precaution to verify, from time to time, the titer of the solution. This titration utilizes the same material and the same chemical substances as are used to determine the active chlorin in the chlorinated lime:

Measure out 10 c.c. of the solution, add 20 c.c. of 1:10 solution of potassium iodid, and 2 c.c. of acetic or hydrochloric acid. Drop, a drop at a time, into this mixture a decinormal solution of sodium thiosulphate until decoloration is complete.

The number of cubic centimeters employed multiplied by 0.03725 will give the weight of the sodium hypochlorite contained in 100 c.c. of the solution.

A solution is correct when, under the conditions given above, from 12 to 13 c.c. of decinormal thiosulphate are required to complete the decoloration:

$$13 \times 0.03725 = 0.485 \text{ per cent. of NaOCl}$$

The Test for the Alkalinity of Dakin's Solution.—It is easy to differentiate the solution obtained by this procedure from the commercial hypochlorites and from Labarraque's solution:

Pour into a glass about 20 c.c. of the fluid, and drop on the surface a few centigrams of phenolphthalein in powdered form. Dakin's solution, correctly prepared, gives absolutely no change in tint, while in the same conditions Javel water and Labarraque's fluid give an intense red coloration which indicates in the latter two solutions the presence of free caustic sodium.

Apparatus Required for Sterilization of Wounds.—1. One liter bottles, the lower opening with an interior diameter of 7 mm.

2. Distributing tubes with one, two, three or four branches (Gentile).

3. Connecting tubes: (*a*) cylindric tubes, 2.5 cm. long, interior diameter 4 mm.; (*b*) cylindric tubes, 4 cm. long, interior diameter, 7 mm.; (*c*) Y tubes, interior diameter, 7 mm.

4. Mohr pinch-cocks.

5. Irrigating tubes. Drain tubes No. 30 (interior diameter, 7 mm.).

6. Connecting tubes. Drain tubes No. 16 (interior diameter, 4 mm.), closed at one end. Above this end these tubes are perforated with holes from 0.5 to 1 mm. in diameter:

(*a*) Tubes perforated for 5 cm., 30 cm. long; (*b*) Tubes perforated for 10 cm., 30 cm. long; (*c*) Tubes perforated for 15 cm., 40 cm. long; (*d*) Tubes perforated for 20 cm., 40 cm. long.

Whatever the trouble of making the solution and using this method may be, it is obvious that if sepsis can be entirely banished from any wound, and in a matter of days, the result is well worth the effort. But it is also to be hoped that the next six months will bring to us from Dr. Carrel a simpler and more rapid method of making the solution, and possibly of its application.

SHOCK AT THE FRONT.

It is in these days rare indeed that we have the pleasure of reading a medical monograph which is at once convincing as a simple solution of an important and perplexing problem, and is also a narrative of great interest, holding the attention by its vivid directness, its almost to be regretted brevity and its charming and faultless English style. Professor Porter's contribution on shock should be reproduced here again in full, but as it appeared only a few weeks ago in this Journal (December 14th, 1916) students of all ages are referred to it direct for reading and re-reading. Prof. Porter has attacked one of the most complicated of all surgical problems (and according to his own observations, one which is in France, at least, very fatal), a subject of which many, most involved and often almost unintelligible explanations have been offered; he has studied it by numerous animal experiments; has developed a simple and adequate and convincing theory, both of its causation and of its treatment; and has then verified his observations and conclusions upon the soldiers at the front. Shock, he says, results from a subtraction of blood from important centers; either by bleeding outside the body, into body cavities, or into the great veins of the portal system (which can contain nearly three times the entire blood bulk); for practical purposes, therefore, shock is hemorrhage and hemorrhage is shock, and treatment is direct and rational.

This monograph reëmphasizes the fact that the final explanation of what seem to be even the most complicated processes, is usually simple and brief; and it is interesting to recall that Fitz's monograph on Appendicitis, which appeared in 1887, and is perhaps the most important and far-reaching contribution made to the world by American Medicine since October 12th, 1846, is summarized by the author in less than ten lines of print. Prof. Porter's conclusions are not much longer.

"From a practical standpoint, shock exists when the diastolic pressure is 60 m.m. or less. The blood then accumulates in the portal veins, the activity of the heart is impaired, and the nutrition of the nerve cells is affected.

The treatment of shock requires:

1st. A special position of the wounded; the abdominal vessels should be higher than the heart and the brain.

2d. Heat.

3d. Intravenous injections of normal salt solution.

4th. Intravenous injections of adrenalin.

5th. The transfusion of blood, in certain cases.

6th. The taking of the diastolic pressure every half hour."

These brief conclusions are elaborated under each number, at the end of the article: another reason why they are not printed here in full, is that the entire brief monograph should be read and studied by everyone who has at any time had to deal with and treat shock.*

HEART AND PERICARDIUM.

Foreign Bodies in the Heart:

There have been several cases reported in which foreign bodies have been removed from the heart. Death has resulted in most of the cases, but since projectiles have not been well tolerated in the heart, the results of operative treatment are on the whole better than those of non-interference.

Ascoli and Masserini: *Clin. Chir.*, 1916, page 377, xxiv, and *Surgery, Gynecology and Obstetrics*, November, 1916, page 453.

Bichat: *Bullet. Mem. Soc. de Chir. de Paris*, 1916, xliii, 1100; *Surgery, Gynec. and Obstet.*, November, 1916, page 453.

Silvan: *Riforma Med.*, 1916, xxxii, 297.

Villeon: P. de la, Three Juxtacardiac Projectiles; extracted; recovery. *Bullet. Mem. Soc. de Chir. de Paris*, 1916, xlii, 998.

Leriche: *Rev. de Chir.*, 1916, xxxv, 274.

Contrand and Bellot: *Rev. de Chir.*, 1915, xxxiv, 433.

Coleman, M. J.: *Maryland Med. Jour.*, 1916, lix, 42.

Suppurative Pericarditis:

S. B. Rhodes, in the *Annals of Surgery*, condemns the use of the exploratory aspirating needle in cases of suppurative pericarditis for the following reasons: traverses normal pleura in entering the pericardial sac and results in empyema; heart is easily punctured; exudate may be too thick to pass through needle, and is unnecessary as a diagnostic aid, x-ray, leucocytosis and temperature chart being sufficient.

"A resection of one costal cartilage followed by pericardiotomy, or aspiration of the pericardium, under direct inspection is not a serious procedure, and should be the method of choice."

The mortality in 86 collected cases was 47.7%.

It is advised that drainage be maintained for a considerable length of time.

Rhodes, G. B.: *Ann. Surg.*, Phila., Dec. 1915, lxii, 660, Suppurative Pericarditis.

Yates, W. N.: *J. Mo. St. M. Ass.*, 1916, xiii, 29, Injury with Extravasation of Blood in the Pericardium.

E. H. Pool and M. A. Ramirez in *American Journal of Medical Science*, 1915, report the results of 21 cases of cardiorrhaphy; 9 healed without complications, the remaining 12 showing pneumonia, empyema, pericarditis, pleurisy and pneumothorax.

Local Anaesthesia:

Novocaine is the local anaesthetic of choice for the following reasons: It is not irritating to the tissues, may be sterilized without losing its effectiveness, and is but feebly, if at all, toxic. It is questionable whether it is necessary to sterilize it when used only as a local anaesthetic, as one of us has made use of it unsterilized in over one hundred goitre operations without any infection. Novocaine is not as satisfactory when used on mucous membranes as is cocaine.

Because of the difficulty during the past year in obtaining novocaine, both of us and our house surgeon have made use of the local anaesthetic, aposthesine, not yet upon the market, and have found it practically as satisfactory as novocaine. It is the impression of one of us who has used it in three goitre operations that its anaesthetic effect is not as lasting as that of novocaine.

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* A further contribution on this subject by Dr. Porter was published in the issue of the JOURNAL for Feb. 15, 1917.—*Editor.*

Regarding the percentage of the novocaine, one of us has for a considerable time been employing a 2% solution in operations upon the thyroid, and feels that there is an increasing tendency on the part of those previously using a 0.5% to make use of the solution of higher percentage. He has had no toxic symptoms appear in a large series of cases in which solutions of this percentage were used.

The advantage of the 2% solution is that no wait is necessary before the operation is begun, and anaesthesia is complete in the area injected.

Quinine and urea hydrochlorid, because of the occasional irritation produced by it in the tissues and consequent slough, has received less favorable mention in the literature of the past year, and would seem to have lost some of its popularity of a year ago.

Society Reports.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY; DEPARTMENT OF PUBLIC HEALTH AND CHARITIES; CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

CONTINUED MEETING HELD IN WITHERSPOON HALL, FRIDAY, OCT. 27, 1916, AT 8 P.M.

DR. FRED B. LUND, President of the Clinical Congress of Surgeons of North America, in the chair.

CARE OF THE TEETH.

(Illustrated by lantern and cinematograph.)

DR. WESTON A. PRICE, Cleveland: I wish to express my personal appreciation and that of my profession for this opportunity of coöperation in research work. Three great truths have come to the medical and dental professions within the past decade. Probably no truth since the discovery of the circulation of the blood has been of greater significance to humanity than the discovery of the relation of focal infection to localized and systemic disease. The second new truth is that of the ability of organisms to localize in certain tissues of the body,—tissue electivity. For example, when a child has the mumps you realize that the organism has an electivity for the parotid gland. Other organisms similarly will attack the spinal cord and produce nervous disorders. The third new truth is that of the ability of the organism to live with certain characteristics; we may call it bio-chemical reaction. Such an organism may acquire electivity for certain tissues without getting into the system, and may reside in an environment surrounded by tissues and in which oxygen is scant. Such is the condition existing in a periapical abscess at the end of a root of a tooth. The organism most to be feared is not the one attacking you with virulent disease upon entering your system, but that which lives almost as a parasite, producing no local irritation, but through a long series of years developing arthritis or various other lesions. We have had many cases of arthritis relieved by no other treatment than that directed to the periapical abscess. In Rosenow's study of tissue electivity he found that in 68 per cent. the organism taken from the appendix selected the appendix when injected into rabbits, and that very few of the rabbits had the organism in other tissues of the body. Of organisms taken from ulcer of the stomach 60 per cent. selected the duodenum; in gallstone infection, 80 per cent. selected the gallbladder; in anterior poliomyelitis 78 per cent. selected the spinal cord. When we remember that 90 per cent. of people die because their resistance is lower than the attacking power of the organisms we appreciate the value of the elimination of every possible source of focal infection.

DIAGNOSIS OF CANCER.

(Lantern slide illustrations.)

DR. JOSEPH C. BLOODGOOD, Baltimore: The diagnosis of cancer means its recognition. If we can recognize the disease at a period when the chances of a cure are 25 per cent., that diagnosis is not highly valuable. Experience shows that, left to ourselves, doctors as well as laymen, men and women,—left to ourselves,—we shall come to the recognition that something is the matter with us, and we shall seek help with the chances of 25 per cent. cure. But the medical profession now has the knowledge to give you which will allow you, yourself, to recognize the beginning of cancer, and then if you will seek help, the chances of a cure are almost 100 per cent. So that we can truthfully say that the only cure for cancer today is information. So far as we know, cancer is not a hereditary disease; it is not a blood disease. Cancer is not contagious or infectious. No matter how much power we give the Public Health Department, national, state, or county, it cannot protect you from cancer as it can from typhoid fever; nor have we any reason to believe—although we may indulge the hope—that we have any antitoxin to protect you from cancer. And, when cancer is fully developed, the greatest art in surgery can offer you only 25 per cent. of cure. So far as we know, cancer never begins as cancer, but as something which may be cancer. If you will listen to the warning given in this way you have almost 100 per cent. chance of prevention. Cancer is so rare in children that we may eliminate its consideration with them; but, almost 80,000 adults die of cancer every year. In these the disease is distributed mainly into four great regions: the skin; breast of women; the uterus; stomach and large bowel. Regarding cancer of the skin the question of importance is whether the little mole or other skin condition is the kind of thing which should be removed. A great many of these you may carry to your grave; but, there are a few which, if left alone, will carry you to your grave. Regarding cancer of the breast we must teach a woman that if she feels something in her breast on Monday which was not there on Sunday that is a warning, and that if it be cancer, and she heeds the warning, her chances of cure are 96 per cent. All she sacrifices is the incurring of the slight deformity which is insignificant compared with death from cancer. In getting this information to the millions of women we need the coöperation of the newspapers, with at the same time exclusion from their columns of the advertisement of quack cancer cures. By our experience at Johns Hopkins we know that information in regard to a lump in the breast is increasing the number of cures. Injury during childbirth is the chief cause of cancer of the uterus. Every woman knows whether her normal functions are regular or irregular; if there is the slightest change she should seek advice. Doctors, at least, can protect their wives from cancer of the uterus, and the medical profession can likewise protect the mothers of the country from cancer of the uterus. Cancer of the abdomen forms a more difficult problem. Here, too, are needed a little common sense, a little courage, and a little knowledge. Whenever a man or woman has a new sensation about the abdominal parts of the body they should give it heed. Rarely do we find cancer of the tongue or lip except in smokers. If, therefore, men smoke, let them keep their mouths clean. If they have a burn or white patch on the lip, they should stop smoking. (The subject was graphically illustrated by lantern slides.)

DESCRIPTION AND ILLUSTRATION OF CURABLE DEFORMITIES AND THE IMPORTANCE OF THEIR PROPER TREATMENT.

(Lantern slide illustration.)

Dr. Robert W. Lovett, Boston: There is much of interest that might be said from a literary and historical point of view regarding the subject of deformity. The humpback has been considered as conferring luck upon those who touched his hump; the court jester was misshapen and many noted men have been physically imperfect. Alexander the Great is said to have had a wry neck; Lord Byron had a club-foot and Sir Walter Scott was lame from an attack of infantile paralysis occurring when a child. Deformities in general may be divided into: (1) the so-called congenital; (2) those due to disease, of which there are three main varieties: (a) those due to tuberculosis; (b) rickets; (c) infantile paralysis. While these are not preventable, their excessive development is as a rule due to neglect and bad treatment. In the third class of deformities we find those caused by our somewhat over-civilized habits; for example, distortions of the feet, round shoulders and faulty attitude and lateral curvature of the spine, attributable respectively to badly shaped shoes, improper clothing, improper school furniture, overwork and unfavorable environment. Lantern slides of the three classes of deformities are shown. Bowlegs, often attributed to too early walking, are practically invariably due to rickets. The deformities of infantile paralysis are, as a rule, to be prevented by surgical treatment during the acute and convalescent stage. When the disease does not affect the spine or shoulder, deformities are to be prevented and in nearly all instances are remedial by operation. One intrinsic difficulty with the human skeleton predisposing toward round shoulders is that it is a quadruped skeleton set on end. Perhaps the most prolific cause of this deformity is the manner in which young children are clothed with the waist with straps passing over the shoulders and the side elastics fastened to the stockings. Lateral curvature of the spine in the severe or structural form is of four varieties: (1) (congenital); (2) that due to rickets; (3) to infantile paralysis; (4) to empyema. These forms are not as a rule preventable. With respect to deformities caused by badly shaped shoes the matter seems discouraging upon reflection that pointed toed shoes were prominent in the reign of Richard II., and are as bad today as in any previous period. Deformity begins early and consists of displacement inward of the great toe so that practically the right relation never exists in the adult. The little toes are crowded together and lose their motion, with resultant poor muscles and a misshapen foot. While the heel was originally designed to keep the boot out of the mud it has attained such an absurd height that a normal gait is impossible. Having made a very earnest and time-consuming endeavor toward the adoption of a really good shoe I have come back to a rather pessimistic attitude toward any radical reform in this cause of deformity. I hope I may have enlisted your interest sufficiently to have you observe your own children and those outside of your family in the prevention of certain obviously preventable deformities. Such effort I believe would raise the efficiency of the community.

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BOSTON ASSOCIATION FOR RELIEF AND CONTROL OF TUBERCULOSIS.

Thirteenth Annual Meeting.

The thirteenth annual meeting of the Boston Association for the Relief and Control of Tuberculosis was held in this city on Friday, November 10, 1916. In his introductory remarks, Dr. Arthur K. Stone, president of the Association, emphasized the efforts that are being made to secure coöperation among the various agencies interested in the fight against tuberculosis.

He said the most important work at the present time is with the general public in showing them how to avoid tuberculosis and pointed out their duty to support the city and state departments in their efforts to care for those afflicted and their preventive work among those families in danger of contracting the disease. Employers of labor, labor unions and legislators have a grave responsibility in this campaign.

Dr. Stone called attention to the fact that the Municipal Tuberculosis Department has this year added 140 new beds to its hospital at Mattapan and there should be no uncared for cases in the city. Boston has about 1100 deaths per year from tuberculosis. This means that there is a new crop of children being infected. He called attention to the fact that the Hospital Department needs a new Out-patient Department, the present quarters being greatly overcrowded. It also needs more nurses to visit afflicted families for preventive reasons. Connected with this Out-patient Department Dr. Stone says he hopes the Mayor and Council will grant this request of the Consumptives' Hospital Department.

Mr. Seymour H. Stone, secretary of the Association, submitted the following annual report.

EDUCATIONAL.

In opening this report, mention should be made, first of all, of two co-operative efforts with other agencies that were a part of the educational work of the Association this year.

Committee on Healthgrams.

The first was the organization by the State Department of Health, the Boston Health Department, and the Women's Municipal League and this Association of a joint committee, for the purpose of preparing and distributing healthgrams in stores, railroad and elevated stations, steamboat wharves, hotels, restaurants and lodging houses. Five different sets have been issued, to the total number of 1,650. The Women's Municipal League and this Association have assumed the expense, and with the aid of the Boston Health Department and the Boy Scouts of America, have distributed the cards at intervals of about four weeks.

Second Committee on Park Shows.

This committee, by means of free motion picture shows in the parks, has been very successful in bringing information regarding health before the public. Sixteen organizations interested in health and civic betterment formed the committee that had these shows in charge, and with the co-operation of the Park and Recreation Department and the Boston Health Department were able, this summer, to give thirty-six performances to about 76,000 people at an expense of $1,107.90

Lectures, Slides and Films.

Reaching the public by means of lectures continues to be a part of the Association's work, although this method is coming more and more into competition with the motion picture film.

Thirty-two talks have been given, eighteen of these were delivered by the Secretary of the Health in Industry Committee.

The Association owns one film "The Awakening of John Bond" which was used in connection with the Park Shows, and was also loaned for use in other parts of the State. A new film in two reels, "The Great Truth," prepared by the National Association for the Study and Prevention of Tuberculosis, has been recently purchased, and was ready for use about the first of December.

Literature.

Over 47,000 pieces of literature in English and foreign languages have been distributed.

Exhibits.

The Association has three exhibits. The Health in Industry exhibit has been in nearly constant use, not only in Boston, at such places as the Public Library, City Club, and the Chamber of Commerce, but also in ten other cities of the state. The Open Air School exhibit, consisting of about 100 photographs of such schools collected from different parts of the country, has also been used outside of the city. The school exhibit has been used since March in connection with the Health Unit of the City Health Department at 17 Blossom Street. These exhibits have been seen by approximately 150,000 people.

HEALTH IN INDUSTRY COMMITTEE.

The second year's work of this committee has been very encouraging. The publicity given to the work by the Chamber of Commerce Journal, the trade journals and the newspapers, with the talks by the secretary of the committee and the display of the exhibit, has aroused much interest in what the committee is trying to accomplish.

The committee has assisted in establishing nursing service in four factories, two of which manufacture candy, one electrical supplies and one rubber clothing. One large laundry has also established such a service, and similar plans are now under way for other factories and groups of factories.

The secretary has given eighteen noonday health talks to a total of about 1000 employees, the exhibit has been shown in nineteen different places and seen by about 130,000 people, and 6000 educational leaflets have been distributed at exhibits and lectures.

In this connection it is interesting to note the value attached by insurance companies to nursing work in factories. The Massachusetts Rating and Inspection Bureau has established a special rate to firms employing approved nurses and installing properly equipped emergency rooms.

CLOTHING COMMITTEE.

The first of the year the Association was asked to assist in securing clothing for needy patients who were entering the state sanatoria. This problem seemed to involve not only patients going to sanatoria, but patients already in these institutions and their families outside.

In order to determine just how this matter should be handled, the executive committee appointed a special committee with one of its members as chairman. As the problem was mainly one of relief, it was thought best to appoint as the other members of the committee the executives of five relief societies and a member of the staff of the Boston Consumptives' Hospital Out-patient Department.

That the study might be made as thorough as possible the committee employed on part time a paid secretary and suggested to the Boston Consumptives' Hospital Out-patient Department that they refer to the secretary of this committee the cases of all patients for whom clothing could not be procured. A careful investigation was then made to determine if the resources of the family were such as to furnish what was necessary. If this was impossible an appeal was made to a relief agency.

The conclusions arrived at in this matter of clothing are based on only sixteen cases, since that is all that were referred to the committee. It is doubtful, however, whether a larger number would have affected the conclusions. From these few cases it would appear that where the Boston Consumptives' Hospital nurses are not able to secure the needed clothing, the matter can usually be solved through the confidential exchange of information.

The most difficult cases to handle are those legitimate public charges whom the private relief agencies feel should be aided by public relief, but the state authorities, on their side, assured the committee that no patient need stay away from a sanatorium because of a lack of clothing.

The committee recommends the constant use of the confidential exchange of information; a fuller co-operation between nurses and relief agencies; and the extension of the public relief department's work to handle the cases that are obviously public charges.

PRENDERGAST CAMP.

Prendergast Camp has had its fourteen beds occupied all the time. The greater number of these patients are waiting to be admitted to one of the state sanatoria, some of them having to wait as long as three months before gaining admission.

A total of 130 patients have applied for accommodation at the Camp during the year, and 85 cared for. Of this number 28 have been at the Camp free of charge, the other 57 paying from $2.00 to $8.00 a week for board and lodging. Although the cost of food-stuffs has advanced we have maintained the price of board and lodging to those able to pay, at $8.00 per week.

MAVERICK DISPENSARY.

The Association, in co-operation with the Maverick Dispensary, East Boston, and the Boston Consumptives' Hospital Out-patient Department, continued the experiment of a branch tuberculosis clinic at this dispensary until October 15th of this year. At this clinic many patients who were not inclined to travel the distance to the Out-patient Department of the Boston Consumptives' Hospital could be successfully examined near home, and the Association believes it most desirable for the Boston Consumptives' Hospital Department to open similar clinics in different parts of the city, particularly in the outlying sections, for the accommodation of those who are unable or unwilling to go to the central clinic. By this plan it should be possible to discover many early and curable cases. We understand that the Boston Consumptives' Hospital Department is to open such a clinic at the Health Unit, 17 Blossom Street, West End.

From the opening of the Clinic at the Maverick Dispensary, July 13, 1915, to the time of its closing, October 15, 1916, we have the following facts to report.

Number of clinic days	62
Total patients	269
Average patients per day	4.34 *
Under 15 years of age	161
Over 15 years of age	108
Positive	46
Doubtful	15
Negative	208

* New patients

It is interesting to note that 60% of those attending the clinic were children 15 years and under.

BOSTON CONSUMPTIVES' HOSPITAL.

Knowing the great need of the Boston Consumptives' Hospital Department for more Out-patient nurses to visit cases in their homes, the Association did what it could to assist the Department to obtain an addition to its force of seven nurses. The Department, however, has been allowed only four more such nurses. By corresponding with the heads of organizations interested in nursing throughout the country we found their opinion to be that a nurse should supervise not more than 100 patients. The nurses at the Boston Consumptives' Hospital Out-patient Department are caring for many more than this number, and the Department should be supplied with additional nurses if a high standard of work is to be obtained.

During the year a new hospital ward, a new cottage ward, and an addition to a cottage ward, in all of which the Association was interested, were completed at the Hospital at Mattapan, thereby adding 140 beds and bringing the total number of beds up to 403.

LEGISLATION.

During the year the Association considered 41 legislative bills, 29 being approved. Eighteen of these became laws.

Two commissions, the work of which will be of interest to the Association, were appointed by the Legislature, one to study and report on non-pulmonary tuberculosis, and the other on social, or health, insurance.

Perhaps the most important bill, so far as the Association was concerned, was a measure requiring counties to build tuberculosis hospitals to accommodate patients in communities of less than 50,000 inhabitants. This bill, which became a law, amended the law requiring *all* cities to build tuberculosis hospitals, the requirement now applying only to cities of *50,000 inhabitants or over*. Thus the cities of 50,000 inhabitants or over take care of their own hospital patients, while the county provides for such patients in the smaller communities.

The Association also considered three proposed Federal laws:—The first of these is the Federal Subsidy Bill, commonly called the Kent Bill, which would provide a Federal subsidy for local tuberculosis hospitals. The Association voted to disapprove this measure because it believes a more exhaustive study should be given to the subject before this method is adopted. The Association, however, is heartily in favor of the establishment of a Division of Tuberculosis in the United States Public Health Service.

CONCLUSIONS.

The death rate from pulmonary tuberculosis in this city has dropped to 130 per 100,000 inhabitants in 1915. Nevertheless, the total number of deaths from this disease last year was 1038, which means, conservatively, that there are in Boston at least from 8,000 to 10,000 persons suffering from the scourge.

Tuberculosis is a preventable disease. In fighting it we come closely into touch with problems involving living and working conditions which should not be tolerated by an enlightened community. But these conditions will not be bettered until we have the co-operation of the public, until the people themselves are aroused to demand decent and healthful surroundings and to seek proper food, recreation and pure air to breathe. It is the purpose of this Association to point out how these things may be found.

SEYMOUR H. STONE, *Secretary.*

The following officers of the Association were elected for the ensuing year: president, Dr. Arthur K. Stone; vice-president, Mr. Babson S. Ladd; treasurer, Mr. George S. Mumford; secretary, Mr. Seymour H. Stone; clerk, Miss Isabel F. Hyams.

The first paper of the afternoon was presented by Dr. Edward R. Baldwin of Saranac Lake, N. Y., president of the National Association for the Study and Prevention of Tuberculosis. Dr. Baldwin discussed tuberculosis from the medical standpoint as follows:—

TUBERCULOSIS FROM THE MEDICAL STANDPOINT.

How do physicians view tuberculosis?

It depends quite certainly on the group to which they belong in medical circles.

Physicians can be classified, and in relation to this subject cannot be considered as one body, contrary to prevailing custom. They may be good, bad and indifferent, very much as other people, and one cannot readily standardize them by their attitude toward tuberculosis.

As a general statement, I believe that the best elements in our profession are sympathetic with efforts to control tuberculosis and honestly try to make early diagnoses. They realize the futility of medicinal treatment and know too well the frequency of relapse to be unduly optimistic about heralded specifics. Hopes have been raised high at times and they, with the laity, have been misled. It is not too much to say that at present many physicians have a more lukewarm interest because of disappointments in the so-called scientific methods of therapy in tuberculosis. They really expected too much. A more careful consideration of tuberculosis as a disease, a deeper insight into its remote causes or the changes wrought in the lungs, should have made them gratified with the best results now obtainable. I do not say satisfied, but yet they should be more cheerful.

Many good physicians have had an unwarranted dread of contact with tuberculosis, fearing infection. They are constantly asking questions that show a drift of mind in this direction.

This, I believe to be an incident in the publicity campaign for prevention. It will pass, with the greater emphasis being placed on childhood infection, and realization of the increasing resistance in adult age.

Many of our progressive physicians are enrolled in anti-tuberculosis associations and are alert for every new development in diagnosis and treatment. If they are not known as leaders in public activities it is not from lack of interest, but from their constantly engrossing grind of daily practice, or their unwillingness to be exploited in the press to the undoing of a well-grounded professional standing. This class of men is influential in a quiet way, and to many laymen appear in a bad light because they do not create more noise. There is much to be said in their favor, in my judgment. They must be careful students, and propagandists are not usually of that class. We need both, however.

It is deplorable to admit that a certain number of practitioners are so indifferent or skeptical, if not actually hostile, to any efforts to control tuberculosis, that the conclusion is definite that the real reason is only the selfish one of interference with their practice.

When the overcrowded medical ranks and the low-grade competition shall have lessened, early diagnosis and prompt measures of protection for the family will be more common. A large number of medical men are today honestly endeavoring to be careful not to overlook this disease, and will in the future be obliged by the insistence of the patient himself to give time to such examinations. It is not hard to understand the natural reluctance of such men to lose their patients to some sanatorium when their fees thereby cease. It is quite too much of a strain on average human nature, therefore, for a considerable section of the medical body actively to support energetic measures to lessen their practice.

It is to the credit of the profession that the majority can be depended upon to help, if tactfully approached, yet too much must not be expected of the commercially-inclined doctor.

A noticeable difference in the viewpoint of physicians toward the early diagnosis of tuberculosis is seen of late. Taunted and denounced as they have been for neglecting to diagnose it early, suspected cases are more and more brought under treatment.

These patients are often puzzling to the specialist because it is difficult to determine whether or not they need treatment, granted that they have had the disease, which is itself not easy to prove in some cases.

There is hope that some test may be devised to assist us in deciding these questions. The medical profession needs more allowance made for it as a body, because its advances in knowledge are often painfully slow.

The second paper by Mr. Homer Folks, secretary of the New York State Charities Aid Association, dealt with tuberculosis from the social standpoint.

TUBERCULOSIS FROM THE SOCIAL POINT OF VIEW.

Abstract. The social point of view is, I suppose, simply the human point of view. Looking at tuberculosis simply as a human problem and trying to forget for a moment the things we have all been saying about tuberculosis in the last decade, the outstanding fact which impresses me most is its tragedy. Sickness and death are the sombre facts of life. Utopias are out of fashion. When we compare our present life with that which we would like to have and analyze the difference, it is summed up to a suprising degree in these two things—illness and premature death—and tuberculosis is just another way of saying the same thing, or a large part of it. A friend who has just returned from France said that the striking fact was that nearly everybody was dressed in black. If everybody who has lost a relative from tuberculosis dressed in black, New York and Boston, and every American city, village and hamlet would take on a sombre appearance. Those who have given up their dear ones to the cause of their country have some satisfaction. Those whose loved ones have been taken by tuberculosis have none. Those who have died on the battlefield do so willingly; those who die of tuberculosis, do so because they have to. I often think of the difference between the life of our great Southern cities in mid-summer as I read of it in my boyhood days, when yellow fever stalked abroad and the entire economic and social life of the place was disorganized, and at present, when the disease has been practically forgotten. It is hard for us to realize how greatly the social and economic life of New York and Boston would be changed if tuberculosis were eliminated.

While to me the most urgent call to anti-tuberculosis work is that of suffering, it is also true that every consideration of sound social progress, of conservation of human resources, of good business, make the same appeal.

Occasionally somebody says that people are getting tired of the tuberculosis movement. This simply means that for the moment we have allowed them to forget the plain, human side of the question and have caused them to think about hospitals and dispensaries and bacilli rather than about human beings.

Two or three facts seem to me to stand out in observing what has been done in the effort to deal with tuberculosis from a broad social point of view. One is the fact that the kind of medical treatment which a great majority of the poor and the working people get outside of hospitals does not amount to much. Sometimes the soft pedal is put on when we begin to speak of this, but I see no reason why we should not face the fact and all work together to better conditions in this respect. The medical profession is not an exception in this regard. The kind of service which the poor and the working people get from other professions, say the legal and the clerical, is also not of a very high order. The one professional service which seems to me to measure up to some kind of a fair standard for all classes of people is that of teaching. This also is the only one which is organized on a community basis. Speed the day when the medical profession will be as well organized and as generally efficient and socially useful as our teachers!

Another fact which stands out in our experience is the value of continuous, voluntary organized interest. Some question, I believe, has been raised in Boston and Massachusetts as to the necessity of the continued existence of a voluntary organization for the prevention of tuberculosis. It would never occur to anybody in New York to raise that question. Efficient public service on the part of the State, the municipalities and the other public authorities needs the active and continuous support of private agencies. The Governor of our State alluded to the coöperation between the State Department of Health and the private agencies concerned in the prevention of tuberculosis as a particularly fine illustration of effective coöperation between State and private agencies, and he expressed the wish that other departments of the State government generally might have some such organized support. The functions which such a voluntary organization may wisely perform will differ considerably from year to year, even from month to month, with the changes in the political and administrative situation. Always it will be that of organized support of public authorities who have tried to measure up to their jobs, of promoting the enactment of good legislation and striving to prevent the enactment of that which is bad; of helping to create an informed public opinion which will favor the appropriation of adequate sums for the adequate performance of public health duties, and of acting at times, as it were, as a lubricant, or as a disturber of the peace when public administration tends to fall into routine and tradition—and all public administration does tend from time to time in that direction. Personally I am always disinclined to see private agencies assume permanent executive functions, such as the maintenance of hospitals, dispensaries, nurses, etc. Often it is necessary that they do pioneer work in these lines, but we in New York, at least, always feel more comfortable and encouraged when we see these continuing duties taken over by public authorities, leaving the private agencies to break new ground and to act in an advisory and coöperative manner.

REFERENDUM. Tuberculosis is often the supreme test of the character of an individual. He may recover, or at least retain his usefulness, if he can exercise a continuous self-control under exceptionally trying circumstances. In a sense, this is equally true of the community. The tuberculosis movement is a tremendous test of the efficiency of our social organization. It is not an easy thing to which we have put our shoulders. All the facts which called for the organization of the movement are still operative. The need is as great, the weapons are better and our knowledge more complete. The question is, have we the administrative skill, the possibility of continued interest in a vital human problem, the willingness to provide the necessary funds, the patience to adhere to a policy of demonstrated usefulness? I am not one of those who feel any discouragement over the outcome of our efforts. We do not know that Christianity is a failure, said some one, because it has never been tried. We do not know that our present methods for the control of tuberculosis are in any respect a failure because they have nowhere been put really and fully into effect. When we have done what we are doing now, only on a much larger scale, on a really adequate basis and over a considerable term of years, then we shall be in a position to pass judgment on the results accomplished.

One interesting fact as to the social aspect of tuberculosis which can now be said to have been conclusively established is this: that communities of all kinds, urban, rural and mixed, are willing to tax themselves to pay for proper care of all the tuberculous when the matter is put before them. In the State of New York in the last three years, ten different counties, with populations ranging from 25,000 to 125,000 have voted at the polls on the question of appropriations for the construction of county tuberculosis hospitals. In every instance, a majority of the voters have voted for building the hospitals and for appropriating specific sums therefor. The total sums so voted amount to a little less than $1,000,000; the number of persons who have voted on the subject to 138,000, and the combined majorities amount to nearly 35,000.

The third paper of the afternoon was by Dr. Lee K. Frankel, of New York, who, in considering tuberculosis from the industrial standpoint, stated it as his belief that industry must be taught its responsibility in the matter of occupational diseases and that these diseases should be made the subject of expert private or governmental study.

BOSTON SURGICAL SOCIETY.

(INCORPORATED.)

MEETING NO. 16.

A CLINICAL meeting of the Boston Surgical Society was held on Monday, February 5, 1917, at the Massachusetts General Hospital, at 10 a.m.

Dr. R. B. Greenough demonstrated a case of hemangioma of the penis, and a post-operative case of carcinoma of the tongue in which an extensive dissection of the neck had been done, with division of the jaw: reunion of the bone fragments by bone plates. Patient has returned to the hospital for removal of the bone plates.

Dr. E. H. Risley (by invitation) spoke of the treatment of burns and demonstrated a case of burn of the foot, treated by tincture of ferric chloride.

Dr. W. Denis (by invitation) spoke of the analysis of "ambrine," and demonstrated a preparation essentially the same as "ambrine," prepared by her in the laboratory at very small expense.

Dr. Hugh Williams demonstrated a specimen of cystic spleen removed by him.

Drs. G. W. W. Brewster and H. F. Hartwell spoke of the relation of gastric ulcer and cancer and showed microscopic specimens of a border-line case.

Dr. C. A. Porter demonstrated a case of enchrondroma of the shoulder, with resection of the upper third of the humerus and implantation of the fibula in its place.

Dr. C. A. Porter and Dr. J. H. Wright demonstrated a case of Madura foot.

Dr. H. P. Mosher demonstrated a number of esophageal instruments devised for the purpose of cutting the septa of esophageal pouches, and related three cases in which this operation has resulted successfully. He spoke of the tests for labyrinthine disease and demonstrated a revolving chair used for this purpose.

Dr. E. G. Brackett spoke of the operative treatment of ununited fracture of the neck of the femur, and demonstrated cases.

The following operations were performed by members of the Surgical Staff of the Hospital:

Dr. Porter. Excision and curettage for Madura foot.

Dr. Scudder. Excision of ulcer of the lesser curvature of the stomach, with posterior gastroenterostomy.

Dr. Brewster. Exploratory laparotomy in a case with symptoms suggestive of gastric ulcer: cirrhosis of the liver was found.

Dr. Cobb. Cholecystectomy in a case of cholecystitis with gall-stones.

Dr. Williams. Cholecystectomy in a case of persistent sinus following a previous cholecystotomy.

Dr. Greenough. Radical excision of the breast for carcinoma, with dissection of the axilla.

Dr. Davis. Closure of caecostomy wound in a case in which caecostomy had been done for relief of acute intestinal obstruction. Later an excision of a carcinomatous stricture of the lower sigmoid, with end-to-end anastomosis had been performed.

Lincoln Davis, *Secretary.*

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Book Reviews.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago, April, June and August, 1916. Edited by P. G. Skillern, Jr., M.D., of Philadelphia. Philadelphia and London: W. B. Saunders Company. 1916.

The April number of the Clinics of John B. Murphy is the first which is edited by Dr. P. G. Skillern, Jr., of Philadelphia; it cannot be examined without awakening thoughts of the dead surgeon.

Dr. John B. Murphy was undoubtedly one of the most able clinical teachers of his generation. He was moreover possessed of a mind of quite unusual perceptive power, and was a man singularly unlimited in the variety of mental attributes which lay behind his surgical work. His mind was essentially many sided. This peculiarity enabled him to jump from the Murphy button to the use of nitrogen in the thoracic cavity; to appendicitis; to the reconstruction of joints; to bone surgery, etc., bringing to each a viewpoint which was characterized by the marks of something closely approaching genius. This brilliancy of his mind was greater than his ability as an operator, and much beyond the results of his laboratory work.

John B. Murphy had the characteristics which it has been the custom in this country to attribute to the Middle West; very great energy, ceaseless activity, and a perfectly innocent inability to hide his light under a bushel. He was a powerfully stimulating personality, and his too early death is a very real loss to surgery, both in and outside of America. It is a little difficult to conceive of the continuance of the "Clinics of John B. Murphy" after he has gone.

The April number includes, among many other chapters, an extremely interesting talk on the surgery of tendons and tendon-sheaths; a series of cases of bone surgery of all parts of the body; tendon transference in infantile paralysis; perforating ulcer of heel, etc., It is essentially a number devoted to the surgery of bones and tendons and, as such, is particularly appropriate at this time.

The June number, also edited by Dr. Skillern, includes a brief talk by Dr. R. C. Coffey of Portland, Oregon, on certain abdominal operations; besides this, a series of chapters upon surgery of the abdominal cavity for conditions both malignant and infectious, and certain other chapters on the female pelvis and the bladder. As usual, the pictures are numerous and excellent; some of the colored plates being particularly good in the moderation of the colors used. There is, as yet, no obvious change in the essential character of the book.

The August number is a little larger than the two previous numbers, consisting of 120 pages, and not less than 30 chapters, many of them with sub-headings. There are again a large number of chapters upon bone surgery; two upon biliary surgery; an occasional plastic; two or three chapters on surgery of the nerves, and two interesting cases of bone infections metastatic from furuncles; including a series of 16 illustrations showing certain phases of gall-bladder surgery (modified from Kehr).

The Clinics continue to show the numerous characteristics of Dr. Murphy's style.

A Layman's Handbook of Medicine. With Special Reference to Social Workers. By Richard C. Cabot, M.D. Boston and New York: Houghton Mifflin Company. 1916.

As would be expected, this volume of popularized medical information is replete with the personality and temperament of the author. As might also be expected, those parts of it which deal with medicine are more sound, accurate and illuminating than those which deal with surgery. Indeed accuracy and error are mingled in it much as they are in most human productions. Some of the author's statements would hardly go unchallenged,—for instance, that no one knows the use of the prostate gland, that repair of the torn cervix is always a minor matter, never essential to life, that floating kidney is a perfectly harmless peculiarity. Dr. Cabot is to be highly commended for his sensible statements about the venereal diseases, about tobacco and alcohol, and on personal hygiene, especially with reference to bathing and clothing. It is a pity that he did not add paragraphs on corsets and shoes for women. He is to be praised also for his conservative attitude on the surgical treatment of uterine fibroids, and particularly for his clear, firm and sane stand on the subject of so-called birth control. Perhaps the most serious blemish on his book, however, is his comments on the use of the pessary in the treatment of retroversion. This is associated with his questionable statement that there is no one right position of the uterus. It is doubtless true that retroversion may exist without symptoms, but it is equally true that it more often does produce symptoms which can be relieved only, and which are promptly relieved, by correcting its position. In this correction the pessary is a now unfashionable, but in expert hands, an exceedingly valuable and harmless agent. Doubtless it is an appliance that, like all good things, has been abused. Probably Dr. Cabot's attitude towards it is dependent on the fact that he has not often seen it used intelligently. Similarly, with regard to prolapsed kidney, Dr. Cabot is right in condemning the former surgical fad of nephropexy, but wrong in failing to recognize that when floating kidney produces symptoms, which it frequently does, it should be and can be corrected by correction of the ptosis, of which it is one manifestation. Indeed so important a condition as ptosis is not mentioned in the index. In his paragraphs portraying the gloomy hopelessness of cancer of the uterus, Dr. Cabot apparently fails to recognize that in the great majority of cases this fatal disease is preventable by timely treatment and repair of the lacerated cervix from which it arises, a repair which, as we have noted, he states is never essential to life. This is another instance of the difficulty with which simple and recognized facts of preventive medicine make headway in general knowledge.

Despite certain defects, however, Dr. Cabot's book is stimulative and, on the whole, sound. Certainly the possible harm of its few inaccurate or questionable statements will be far less than the good done by its substance, which in the hands of the laity, for whom it is intended, cannot but be in the main beneficial. Most of all, it is to be commended for the wholesome frankness and optimism of tone which pervades it, and which is, perhaps, the element most needed to divest the facts of medicine from the mystic terror which often shrouds them in the mind of the public.

Constipation, Obstipation and Intestinal Stasis (Auto-intoxication). By Samuel Goodwin Gant, M.D. Second Edition. Philadelphia and London: W. B. Saunders Company. 1916.

The first edition of this book under the title of "Constipation and Intestinal Obstruction (Obstipation)" was reviewed in our issue of March 11, 1909, page 316. The title of the second edition has been somewhat changed in order to meet not only the advances in medical and surgical work, but also a generally accepted change in nomenclature. It is a considerable relief, however, to find that Dr. Gant has not changed his opinions with the nomenclature. He takes a very sane and conservative view in regard to the interpretation of the Roentgenological findings and also in regard to the therapy based upon those findings. While admitting that surgical procedures are often desirable in chronic intestinal disturbances, he is firmly opposed to the tendency evidenced in many places of subjecting patients on comparatively slight provocation to major surgical operations.

Geriatrics, the Diseases of Old Age and Their Treatment. By L. L. Nascher, M.D. Philadelphia: P. Blakiston's Son and Company. 1916.

Every year brings a large list of publications of all sorts on the subject of diseases of early life. Nevertheless, to many practitioners the diseases of old age are perhaps of equal importance. The appearance of Dr. Nascher's book, which was essentially the first in the English language on this subject, apparently filled a considerable need, since we now have a second edition which has grown to a bulky volume of over 500 pages. The book covers fully all the conditions peculiar to advancing age.

Preventive Medicine and Hygiene. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard University; Director of the School for Health Officers of Harvard University, and the Massachusetts Institute of Technology; formerly Director of the Hygienic Laboratory of the United States Public Health Service. Second edition, thoroughly revised, with 172 illustrations and 1286 pages. New York and London: D. Appleton and Company, 1916.

The first edition of Dr. Rosenau's text-book was reviewed at considerable length in the issue of the JOURNAL for September 11, 1913 (Vol. clxix, page 397). This second edition, appearing after so short an interval, is evidence of the great demand which the first has deservedly met. The rapid increase of knowledge during these three years has necessitated the addition of many new subjects, including discussion of the prevalence of venereal diseases, the Shick reaction, the use of emetine, the standardization of bacterial vaccines, sensitized vaccines, the Wassermann test, cancer heredity, carbon dioxide in alveolar air, reinspiration of expired air, air washing with reference to ventilation, and the sanitation of swimming pools. The chapters on leprosy, mushroom poisoning, beri-beri, pellagra, carbon monoxide, chlorinated lime, vital statistics, disinfection, and quinine prophylaxis for malaria have been rewritten in whole or in part. The chapter on prevention of mental diseases has been expanded, and its title changed to Mental Hygiene. There has been added at the close of the work an entirely new section on military hygiene, which is of especial interest in the light of the recently awakened public concern in military preparation. The chapters on sewage and garbage are contributed by Professor George C. Whipple of Harvard and that on Vital Statistics by Assistant Surgeon-General John W. Trask of the United States Public Health Service. The author of the chapter on Mental Hygiene is Dr. Thomas W. Salmon, medical director of the National Committee for Mental Hygiene.

The merits of Dr. Rosenau's admirable textbook require no repetition to the medical profession. Particular commendation is due to his effective and lucid style, and to his practice of citing references at the close of each section. The volume should continue to be one of constant use and value, not only to students, but to practitioners, all of whom should take interest in the practical application of the methods of preventive medicine.

A Manual of Therapeutic Exercise and Massage. By C. HERMANN BUCHOLZ, M.D., Orthopedic Surgeon to Out-Patients, and Director of the Medico-Mechanical and Hydro-Therapeutic Departments of the Massachusetts General Hospital; Assistant in Orthopedic Surgery, Harvard Medical School; Assistant in Therapeutics, Harvard Graduate School. Illustrated with 89 engravings. Philadelphia and New York: Lea and Febiger, 1917.

Until the appearance of this admirable manual, designed for the use of students, physicians and masseurs, there was in English no satisfactory practical text-book on the therapeutic use of exercise and massage. Larger works, like those of Dr. Douglas Graham, were too bulky for effective clinical use by practitioners. Dr. Bucholz has produced a book which is a contribution of genuine value to the literature of his subject and which deals not merely with technic, but with the indications for the therapeutic employment of the methods described. It is divided into two parts, the first dealing in ten chapters with the history of therapeutic exercise and massage, the technic of active and passive exercise, free exercises, apparatus, sports and games, the physiology of exercise, the use of exercise, application and physiology of massage, and the relation of exercise and massage to each other, and to other physical therapeutic methods. The second part deals in sixteen chapters with the application of exercise and massage to special conditions, such as stiffness of the joints, fractures, arthritis, subacromial bursitis, lumbo-sacral and sacro-iliac affections, faulty posture, lateral curvature, affections of the foot, flaccid and spastic paralysis and ataxia, neuralgia, neuroses, affections of the circulatory, respiratory and abdominal organs, and constitutional diseases. The author has wisely omitted the subjects of massage of the eye, the ear, and the female pelvic viscera, while those of the nose and throat, and those connected with mental disorders, have been but briefly mentioned. As he points out in his preface, the accurate diagnosis of these diseases requires such a degree of specialized skill that they should not be treated by the masseur or the general practitioner, for whom this book is intended. The illustrations are well selected and reproduced and there is an excellent index. The author is to be congratulated upon the production of a scholarly work in such form as to make it of available and serviceable value to the general profession.

Operative Midwifery. BY J. M. MUNRO KERR, M.D., C.M. Third Edition, 308 Illustrations, 725 Pages. New York: William Wood & Company. 1916.

The third edition of Professor Kerr's work makes its appearance with no essential changes in its makeup. The foreign technique, which in some details is so very different from ours, is well explained and pictured. The popularity of the book is shown by its repeated editions. It surely is one of the best guides to operative obstetrics that we have.

Blood Pressure. BY FRANCIS ASHLEY FAUGHT. Second Edition. Philadelphia and London: W. B. Saunders Company. 1916.

The first edition of Faught's book was reviewed in our issue of August 7, 1913, p. 207.

The second edition follows similar lines and introduces the tremendous wealth of material that has accumulated during the past three years. One finds in this work an excellent résumé of the significance of blood pressure in all sorts of conditions. It is essentially a purely clinical work.

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PROPOSED AMENDMENTS TO NURSES' REGISTRATION LAW.

Among the important legislative measures which will come under consideration of this session of the Massachusetts General Court is a series of proposed amendments to the present law governing the registration of nurses and the inspection of hospital training schools in this Commonwealth. The legislation embodying these amendments is recommended by the Massachusetts State Nurses' Association, and endorsed by a majority of the State Board of Registration of Nurses.

The present law, which established the existing board of five members, consists of thirteen sections. No amendments are proposed to Sections 1, 2, 4, 8, 9, 11, 12 and 13. The principal amendments proposed in the remaining sections are as follows: Section 3 at present reads:

"It shall be the duty of said board, immediately upon its organization, to notify all persons engaged in the practice of nursing the sick, in this Commonwealth, of times, places and subjects of the examinations for registration, by publication in one or more newspapers in each county. Application for registration shall be made upon blanks to be furnished by the board, and shall be signed and sworn to by the applicants. An applicant for registration who shall furnish satisfactory proof that he or she is at least twenty-one years of age and of good moral character shall, upon payment of a fee of five dollars, be examined by the said board, and, if found to be qualified, shall be registered, with a right to use the title 'registered nurse' and shall receive a certificate thereof from the board, signed by the chairman and secretary. An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled, within one year after such refusal, to a reëxamination at a meeting of the board called for the examination of applicants, without the payment of an additional fee. The said board may, after a hearing, by vote of a majority of its members, annul the registration and cancel the certificate of any nurse, and, without a hearing, may annul the registration and cancel the certificate of a nurse who has been found guilty of a crime or misdemeanor. All fees received by the board shall once a month be paid by its secretary into the treasury of the Commonwealth."

For this section it is proposed to substitute the following:

"Application for registration shall be made upon blanks to be furnished by the board, and shall be signed and sworn to by the applicants. Applicants for registration as registered nurses, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, of good moral character, and that they have received a certificate of graduation from a training school for nurses which gives at least two years' training in a hospital, and which is considered efficient by the board, shall, upon payment of a fee of five dollars, be examined, and if found qualified, shall be registered and authorized to use the title 'registered nurse' and shall receive a certificate thereof from the board, signed by its chairman and secretary. An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled, within one year after such refusal, to a reëxamination at a meeting of the board called for the examination of applicants, without the payment of an additional fee. The board may revoke the certificate of any nurse issued by it, for sufficient cause, but before this is done the holder of said certificate shall have thirty days' notice, and after a full and fair hearing of the charges made, by a majority vote of the whole board, the certificate may be revoked.

The board shall have authority under this section to visit and report upon, at any time, the training schools for nurses in this Commonwealth for the purpose of determining their fitness and efficiency as shown by their general equipment, by the character, the methods, and the extent of instruction given therein.

The board is hereby authorized to appoint or employ a registered (graduate) nurse, who has been engaged at least five years in the education of nurses, to act as visitor and adviser of training schools for nurses. Such visitor shall be selected from (at least) five names presented by the Massachusetts State Nurses' Association, or may be one of the members of the board. The compensation of the visitor of training schools shall be $5.00 for each day actually engaged in this service, with travelling and incidental expenses actually incurred in the discharge of her official duties and shall be paid from the treasury of the Commonwealth, upon the approval of the board.

No action shall be taken, however, militating against any school for nurses until after thorough investigation by the board, in conference with the directors of the schools in question, and an allowance made by the board for one year in which to meet the required standard."

Section 5 of the present law reads: "Any resident of this Commonwealth who shall make application for registration within one year after the passage of this act, and who shall prove to the satisfaction of the board, by affidavit or otherwise, that he or she was actually engaged for five years next prior to the date of application in nursing the sick in a competent manner, or has had such experience in a hospital or training school as in the opinion of the board would justify registration, shall be registered without examination on payment of a fee of $5.00."

The following is the proposed amendment for this section:

"Applicants for registration, under this act, who cannot qualify as graduates of training schools for nurses, and who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, and of good moral character, and who are endorsed by three citizens of this Commonwealth, known to be responsible persons of good moral character, one of whom shall be a physician registered in this Commonwealth, shall, upon payment of a fee of three dollars, be registered with the right to use the title 'registered attendant,' and shall receive a certificate in testimony thereof from said board, signed by its chairman and secretary.

Nothing in this act shall be construed as preventing a person registered under the title 'registered attendant' from filing a new application with the required fee of five dollars for the purpose of securing the title 'registered nurse,' if he or she shall have received a diploma from a training school for nurses as heretofore provided in this section."

The amendments to Sections 6 and 7 are concerned with matters of detail, chiefly of fees and compensation. The proposed amendment to Section 10 makes registration compulsory after January 1, 1920.

It is evident that the essentials of the proposed amendments are that the board may have the authority to send an inspector to visit the schools from which nurses go up for examination, and that after 1919, registration shall be compulsory for those who wish to practice as trained, graduate or registered nurses. This latter provision is deemed desirable by the proponents of the amendment to preclude the possibility that nurses discharged from hospitals for a cause may continue to obtain outside employment, passing themselves off as graduates of the schools from which they have been expelled.*

* * *

INDUSTRIAL HEALTH INSURANCE.

THE discussion of the problems associated with the question of industrial health insurance continues to absorb a large share of the attention and interest of the medical profession. In Massachusetts the Young bill is under consideration in legislative committee. In New York, the Mills bill is receiving similar consideration. In a recent issue of the Weekly Bulletin of the New York Health Department, this bill was commented upon editorially in part as follows:

"The bill provides that each fund shall appoint one or more medical officers, whose function it shall be to decide whether or not a patient is eligible for cash benefit, and thus to relieve the attending practitioner of this conflicting duty, which the German physician is called upon to perform. Dr. Frankel proposes that a local organization be created for providing medical care, and that any insurance carrier be permitted to furnish the money benefits. Such a separation would be a repetition of the unfortunate British precedent, where many of the medical problems arise because of the lack of contact between the doctor and the carrier of the cash benefit.

"The Mills bill, it should be borne in mind, provides for the creation of local and trade funds jointly managed by employers and employees, and supervised by a state health insurance commission. Establishment funds, trade unions and fraternals, providing equal benefits and maintaining specified standards, may be approved by the commission. These carriers, among which commercial companies are not included, furnish the money and the medical benefits. The advisory medical bodies, both state and local, provide an opportunity for consultation with the medical profession upon all points of interest to physicians. It is these which the council of the Medical Society of the State of New York has endorsed as safeguarding 'the public interest, the public health, and the welfare of the medical profession.' "

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* Since this editorial was in press, we have received from Dr. Cook a communication on this subject, which is published in a later column and to which attention is directed.—EDITOR.

Attention has been called to the fact that in none of these schemes for compulsory industrial health insurance is provision made for the optional insurance of persons receiving more than the standard minimum annual wage. The possible desirability of including such provision in any piece of final legislation on this subject should be seriously considered. It seems likely that many persons receiving salaries or incomes of $1200 to $1500 a year, and whose legitimate expenses under the present conditions of high cost of living consume nearly the whole of this amount, without provision for medical attendance in case of sickness, might justifiably wish and properly be allowed to share in the benefits of a scheme of health insurance, if they so desire. It is difficult always to draw the line equitably in any economic classification; but if it is drawn in the matter of medical benefit and health insurance, it seems that it might well at the same time represent a distinction between compulsory and voluntary participation on the part of beneficiaries.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for appointments of First Lieutenants in the Army Medical Corps will be held at convenient points the first Monday in each month. Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C."

The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 32 years of age at the time of commission at the close of the Army Medical School, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as interne after graduation. Graduate physicians who are serving their interneship and who meet the other requirements can be examined for appointment with the understanding that they will complete the required postgraduate hospital interneship before coming to the Army Medical School. Those who qualify at their preliminary examination and complete their hospital interneship by July first will be ordered to the Army Medical School for the special session of the school commencing July 9. The regular session of the school will open on October 1st.

In order to perfect all arrangements for the examination, applications should be completed at the earliest practicable date. There are at present 230 vacancies in the Army Medical Corps. After July first, there will be 22 additional vacancies.

MEDICAL NOTES.

American Association of Medical Colleges.—The annual convention of the American Association of Medical Colleges was held at Chicago on February 6 and Dr. W. S. Carter of Galveston, Texas, was elected president for the ensuing year. A resolution was adopted advocating the increase of requirements for admission to medical schools throughout the United States to the standard already set by the larger universities.

Gift to University of Illinois.—Report from Urbana, Ill., on February 12, states that Congressman William McKinley has given to the University of Illinois, the sum of $120,000 for the establishment of an infirmary to be the basis of an extensive health service for the students and teaching staff.

EUROPEAN WAR NOTE.

War Relief Funds.—On February 24 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	$281,431.71
French Wounded Fund	198,325.09
Armenian Fund	154,778.68
Serbian Fund	114,672.86
Permanent Blind Fund	100,803.70
Surgical Dressings Fund	74,740.47
Polish Fund	61,413.77
Italian Fund	33,609.44
LaFayette Fund	21,730.03
Russian Refugees' Fund	17,354.98
French Phthisis Fund	13,208.44
French Blind Fund	3,222.00
Allied Tobacco Fund	2,548.50
French Comfort Fund	1,532.00

BOSTON AND NEW ENGLAND.

St. Elizabeth's Hospital.—It is announced that the new home for nurses at St. Elizabeth's Hospital, Brighton, is nearly completed and is to be dedicated on April 1, after which it will be ready for immediate occupancy.

"The building is of five stories, and the exterior is of brick, with stucco finish, and harmonizes in every way with the architectural splendor of the other buildings. Over the main entrance is a carved stone bearing the coat-of-arms of the cardinal.

"The interior is finished with North Carolina pine, and the floors are constructed of concrete, topped with hardwood. The staircases are of iron, and open on to a roof garden.

"The roof garden is laid in tile and measures 110 feet by 42 feet, with a 3 1-2 foot parapet surrounding it on all sides. Here the nurses will be able to enjoy the cool evenings after their labors during the sultry days of the summer.

"On the first floor are accommodations for 25 maids, besides lounging and sleeping quarters, living rooms, kitchenette, and a small hand laundry for the nurses. On the second floor is the lecture room, demonstration room, parlors, small reception rooms, library, infirmary, and the suite of the superintendent of the training school. The third, fourth and fifth floors are reserved for the sleeping quarters of the nurses, with 20 rooms on each floor for this purpose, thus making accommodations for at least 60 nurses. On these floors is a suite for the nun in charge.

Dedication of Beth Israel Hospital.—The new building of the Beth Israel Hospital, Roxbury, was formally opened on February 4, and received its first patient the same day. The staff of the Hospital consists of Dr. L. R. G. Crandon and Dr. David D. Scannell as visiting surgeons-in-chief. The assistant visiting surgeons are Dr. I. J. Walker, Dr. Herbert F. Day, Dr. Albert A. Shapiro and Dr. M. E. Barron. The visiting physicians-in-chief include Dr. Harry W. Goodall and Dr. Kalman M. Davidson. Other members of the staff are Dr. Philip Castleman, Dr. S. A. Rollins, Dr. Louis Arkin, Dr. William Liebman, Dr. Solomon and Dr. Joseph Shohan. The assisting visiting physicians are Dr. J. Holzman, Dr. Max Sturnick, Dr. Solomon Myers, Dr. Myron L. King, Dr. Sidney M. Saltz, Dr. A. J. Hurwitz, Dr. Henry Norman and Dr. S. M. Pearl.

Care of Infantile Paralysis Victims.—The Instructive District Nursing Association of Boston is doing much service in the way of the care and treatment of the victims of the recent poliomyelitis epidemic. They have in their charge one hundred and fifty children who are given systematic exercises in order that they may be helped to overcome so far as possible their disabilities. Provision has been made in the clinics of the public hospitals for ninety patients and the worst cases are carried to the hospitals in ambulances. The Instructive District Nursing Association carries on this branch of its work in conjunction with the Harvard Infantile Paralysis Commission.

Red Cross Classes in First Aid.—The Boston Metropolitan Chapter of the Red Cross is offering this winter a series of courses in first aid and in preparation for volunteer service in sanitary corps in the event of war. A course of ten lessons is offered to men and it is planned to form a detachment, in case the country should be involved in war, in which it is hoped that members of this class will enlist individually for service.

The following courses are offered to women:

1.—For women who wish to fit themselves to be of real assistance to nurses in case of war, or to be useful in illness in their own homes. A course in home nursing, 15 lessons given by a Red Cross nurse.

2—A course in first aid of 10 lessons, conducted by surgeons, for practical usefulness in case of emergency.

3—A course in advanced first aid, 10 lessons, technical practice only. This is open to graduates of course 2. Six months after graduation.

4—A course in surgical dressings. Eight lessons given by a Red Cross nurse. This teaches the making of the dressings used by the U. S. army and navy surgeon.

5—A course in dietetics, 15 lessons will be offered at an early date.

Full information concerning these courses can be obtained at 83 Newbury Street.

Week's Death Rate in Boston.—During the week ending February 17, the number of deaths reported was 287 against 255 for the same period last year, with a rate of 19.37 against 17.21 last year. There were 45 deaths under one year of age against 30 last year; and 117 deaths over 60 years of age against 93 last year.

The number of cases of principal reportable diseases were: diphtheria, 73; scarlet fever, 23; measles, 136; whooping cough, 2; typhoid fever, 2; tuberculosis, 43.

Included in the above were the following cases of non-residents: diphtheria, 26; scarlet fever, 4; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 5; scarlet fever, 1; measles, 1; tuberculosis, 27.

Included in the above were the following deaths: diphtheria, 3; scarlet fever, 1; tuberculosis, 4.

The Lawrence General Hospital.—The forty-first annual report of the Lawrence General Hospital for the year ended August 31, 1916, records a large increase in the amount of work done by the Hospital. The number of patients admitted during the year was 2303, 530 more than the previous year. The number of patients admitted to the out-patient department was 2108, 627 more than the previous year. The maternity ward which last year nearly doubled its work, has somewhat increased during the present year. Through a gift, a sun parlor has been added to this ward.

Hospital Bequest.—Through the will of the late Alice Forbes Cary of Milton, the Milton Convalescent Home was bequeathed $20,000.

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Obituary.

ALBERT GEORGE BLODGETT, M.D.

Dr. Albert George Blodgett died at his home, Ware, Massachusetts, February 10, 1917, of arteriosclerosis, after a lingering illness. He was born in Monson, September 2, 1841, the son of Alden A. and Elvira Cady Blodgett. Dr. Blodgett was educated at the Ware high school and at the State Normal School at Westfield. Completing his course in February, 1864, he entered the Berkshire Medical Institution at Pittsfield and from there went to the Bellevue Hospital Medical College in New York City, receiving his M.D. in 1868 from that school. The same year he began practice in West Brookfield and remained there until 1895, when he removed to Ware. Dr. Blodgett took an active interest in the welfare of the town, becoming secretary of the Ware Board of Health, a position he held for six years, and secretary of the Republican Town Committee. While in West Brookfield he joined the Massachusetts Medical Society and was a councilor many terms from the Worcester District. In 1902 he was vice-president, and in 1904, president, of the Hampshire District Medical Society, and in 1906, a councilor from that district society. He became a retired Fellow in 1911. Dr. Blodgett held membership in the American Medical Association, was a founder of the Brookfield Medical Club in 1882, and was a Mason. He is survived by his widow and one daughter.

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Correspondence.

THE ANSWER TO THE MEDICAL PROBLEM IN "HEALTH INSURANCE."

Mr. Editor:

The answer to the problem which has vexed us too long is very simple. The problem is to be answered by *abolishing the problem, by cutting out entirely the proposal to furnish medical care as part of the insurance benefits.*

The move purports to be one for insurance of the workman; not for the regulation or ruination of medical practice in this Commonwealth. Let it be an insurance measure pure and simple.

The proposal to let John Doe, sick and off the job, have half, two-thirds, or three-quarters of his wages, while he is out, sounds well; is probably wise, and is very likely entirely feasible. But that is no reason why Richard Roe, M.D., should be forcibly legislated out of his habits and routine, out of his dignity, as he conceives it, and very likely out of half of his living as well; more particularly as he has not asked for any change or merited any regulation, so far as we know. And that is what it comes to.

The medical profession in Massachusetts, since they woke up to the threatening presence of this problem, are divided into two classes, and two only,—those who are savagely against the whole project, and those who feel that the principle may be all right, but that the effect of the proposed legislation is likely to be very disastrous to our profession and to our work. *Not one practitioner*, not one consultant even, who is so situated as to be conversant with the conditions of average medical practice, has raised his voice in favor of sickness insurance (perhaps miscalled "health insurance") as exemplified in the Young bill, now before the legislature of this State.

For something over a year, various committees (Lambert of New York, the late Dr. Favill of Chicago—lately replaced by Billings of Chicago and Cotton of Boston—these for the American Medical Association; Cotton of Boston, Anthony of Haverhill and Merrill of Lawrence, for the Massachusetts Medical Society; and lately Lambert, acting for the "double A double L"—the American Association for Labor Legislation) have tried to work out a scheme under which the rights, and, more important, the opportunities for good work, in our profession could be safeguarded with any reasonable certainty, under the scheme proposed by the A. A. L. L.

It is doubtful if any man of those concerned in these efforts is without misgivings as to this safeguarding, not only of our interests, but of our aspirations for real service. These committees have done real work, and done it honestly and earnestly; their reports leave no doubt of that. Such work is not likely to go further. And the proponents of the measures now under discussion have been generous in including in their drafted bills, the changes suggested by the national committee and the committee in our own State.

But there is a certainty that no bill will go through any legislature unmarred. Even unmutilated, the provisions of the bills presented here and in New York barely protect the continued existence of real medical practice. At best, the medical attendant on the "Panel" would be subject to supervision by somebody, maybe by anybody; his choice of consultant, operator or hospital would be hampered; he would conduct business through a "local"; not with his patient; his judgment as to proper convalescence would be criticized by someone—a referee, probably a recent graduate of some hospital. He would often have to earn his fee twice; once by work and a second time by humiliating explanation and argument.

Most of the best men would try to keep out of this work, as they try now in Massachusetts to side-step cases under the accident law,—a distinct loss in itself. But this is not all. The rate of compensation would be cheapened, though it is already low enough. After less than five years of our accident law in this State, we can see what happens.

The Accident Board rightly enough says that $50.00 for a major surgical operation is *not excessive.* What happens next? Fifty dollars *becomes the price,* not only for those really coming in under the law, but for their heirs and assigns and acquaintances; $50 becomes, *not the minimum, but the maximum price.* This has already happened.

Now, if under the new law proposed, if it should pass, we were compelled to take care of the persons and families of those earning less than $1200 a year, for less than half the current rates,—make no mistake, it will be less than half, not more,—what do you think the man earning $1500 will pay, and what will be the effect on our fees from even the five- or the ten-thousand class?

This proposed act, with all the safeguards we can devise, means reorganization and perhaps ruination of private practice in Massachusetts. Not one doctor, so far, has asked to come in. Why do we not ask to be left out? Why not ask for an amendment to cut out the medical care benefit? Why follow the precedent of the German law? We are not Germans. Why not leave the insurance scheme, as such, to fight its own battle on its own merits, while we demand from the legislature a chance to be free of the theoretical demands of professional economists; a chance to do the best we can with our own problems,—grave enough at best; a chance to do our work undisturbed? We ask nothing, where we might ask much. We represent a progressive element in the body politic. We ask only that our progress be not disturbed by schemes for progress along other economic lines in regard to which we do not pose as experts; in regard to which our professional work leaves us hardly time to form an opinion.

The Massachusetts Medical Society, through its Council, has expressed itself as *not opposed to the principle* of health insurance. But the Society has asked that no precipitate legislation be enacted to prevent the profession from trying to do its best work untrammelled; has asked for time to consider.

There seems to me, after much consideration, no way that this work—the medical work—may be done decently and without interference, unless we can divorce the purely economic question as to the payment of wages during illness from the proper professional care of the sick. This would leave medical matters as they are; would let the sick workman arrange for his own care by doctor or hospital, and pay his own bills, as he does now, only that he would have the benefit of his insurance payments; would put him just where any citizen is (you or I), who carries sickness insurance with a company.

Dr. Anthony: "Let us use the stress of our endeavor to strengthen preventive medicine: to utilize existing laws and to work for others; that may free the honest, sober, industrious workingman from the burden of those who abuse alcohol and drugs; exercise no self-control of bodily functions; are violators of the obligation to their families; also from those who are born feeble-minded; to assist him to obtain a living wage, either directly or through the utilization of sick benefit. Then we can extend to him, in the rare case that force of circumstance may make him dependent, the traditional charity of our profession; in other words, let us help to attack the cause of the present evil conditions and have our work basic in its nature."

Frederic J. Cotton, M.D.

PROPOSED AMENDMENTS TO NURSES' REGISTRATION LAW.

Natick, Mass., February 23, 1917.

Mr. Editor:

I would like to call attention to some points in House bill No. 590, relative to the registration of nurses.

I note, with interest, the advances made, in some respects, over bills introduced in former years, especially as relates to training schools. Heretofore authority has been asked:—

"to investigate at any time the training schools for nurses in this Commonwealth, for the purpose of determining their fitness and efficiency, as shown by their general equipment, by the character, the methods, and the extent of instruction given.

"For the purpose of conducting this investigation the board may employ a person legally entitled to R. N. This selection shall be made from names presented by the Massachusetts State Nurses' Association."

The present bill provides that the board may "appoint or employ a registered (graduate) nurse who has been engaged at least five years in the education of nurses. Such visitor shall be selected from (at least) five names presented by the Massachusetts State Nurses' Association, or may be one of the members of the board."

This is practically the recommendation made in the editorial in the March, 1916, number of the *Modern Hospital*, in which, discussing the "Proposed Massachusetts Inspection Law," it says:

"It occurs to us that the whole matter could be most intelligently settled if all parties could agree that the woman employed as inspector on this work must have had at least five years' executive experience at the head of an approved hospital."

Thus the danger or possibility in former bills of permitting a recent graduate, just out of a training school, with only theory to guide her, to act as an inspector, is safeguarded. It is interesting to note that the words "visitor and advisor" are substituted for "inspector"—a most commendable change.

Then, too, the proviso that:

"No action shall be taken, however, militating against any school for nurses until after thorough investigation by the board, in conference with the directors of the school in question and an allowance made by the board for one year in which to meet the required standard," is the first time, so far as I can recall (and I have on file copies of all, or nearly all, bills introduced in past years, beginning in 1905) that the rights of training schools to fair dealing have been recognized in attempted legislation and safeguarded by proposed laws.

The provision that the "visitor shall be selected from (at least) five names presented by the Massachusetts State Nurses' Association, etc.," savors altogether too much of class legislation, and appears to be an attempt to keep matters closely in the hands of said Association. Under such a provision no other organization, and no other person, can legally suggest any names to the board, but must present them to the Association, and let that body pass upon them, and if it approve, it will send in the name or names. Statistics that I gathered one year ago (and there cannot have been any material change since then) showed the membership of the Association to be about seven hundred out of several thousand graduate nurses resident in the Commonwealth. Can it be said to be representative of all the graduate nurses of Massachusetts? Does Massachusetts wish to bar out all these, and allow them no voice? Does Massachusetts wish to ignore all other citizens? Does she propose to say to the Board of Registration of Nurses, "I do not think that you are competent or safe to be left to an unrestricted choice, but you must be tied to names selected by a body not representative of the nursing profession"? A provision far from the spirit of democracy, fair play and equality before the law.

Data furnished me several years ago seem to show that the state of Illinois (I have not the facts regarding Massachusetts) has expressly guarded against such legislation by saying:

"The General Assembly shall not pass local laws . . . granting to any corporation, association, or individual any special or exclusive privilege, immunity or franchise."

Under that provision the Illinois Attorney General held that: "A statute providing for the appointment by the Governor of a Board of Chiropody from those nominated by the Chiropodists gives such a special or exclusive privilege."

Laws may provide that organizations may suggest candidates for appointment, but that is different from saying that the appointing power shall be confined to that list.

Quite likely it is my fault, but I am unable to understand clearly Sections 10 and 11 of the proposed amended law.

Section 10 says that:—

"Whoever, after January first in the year nineteen hundred and twenty, not being lawfully authorized to practice as a registered nurse within this Commonwealth, *practices* or *attempts* to *practice as a graduate or trained nurse*, etc. (italics mine). . . shall be fined, etc."

Section 11 says:

"This act shall not apply to. . . the acts of any person nursing the sick for hire who does not assume to be a registered nurse."

What I am unable to understand is whether or not it is intended to use the words "registered", and "graduate or trained" as meaning the same.

They certainly do not mean the same in every-day life. There are many "graduate or trained" nurses who are not registered and never will be. Are they to be understood to be law breakers if they attempt to nurse after Jan. 1, 1920? Section 10 would seem to make them so; Section 11 says they are not breaking the law by nursing for hire.

Under Section 10 could a graduate nurse hold a position of responsibility unless registered? I have in mind a concrete instance. A graduate nurse from one of our small training schools, who is not, and probably never will be, registered, but who possesses especially good qualifications as a nurse, giving good satisfaction to patients and physicians of all classes, has held for a year or more the position of superintendent of nurses and patients in a sanitarium of more than state reputation—a pioneer in its special line of work. Does Section 10 mean that this person could not continue to hold that position after Jan. 1, 1920, unless registered? Does it mean that nurses who have been giving great satisfaction to physicians of high rank, sought after oftentimes in preference to those of greater renown, must give up nursing unless registered? This is only one of many instances. Such results of legislation have followed in some other states.

I have elsewhere spoken of having many bills on file. I have also letters in abundance from parties in New York, Pennsylvania, Illinois, Michigan and other states, together with any amount of printed matter (sufficient to make up a large part of one issue of your JOURNAL) bearing on this many-sided question of nurse registration. I could give many apt quotations. Suffice it to say that the changes and advances in the bills from 1905 to the present time are quite marked and interesting as denoting progress in the views held and advocated. Meanwhile Massachusetts needs to be careful as to any new legislation.

Very respectfully,
CHARLES H. COOK, M.D.

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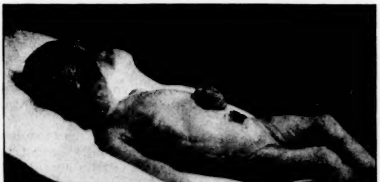
A CASE OF CYCLOCEPHALUS.

Boston, Feb. 15, 1917.

Mr. Editor:

I am enclosing a picture of a case of Cyclocephalus, thinking that it might be sufficiently interesting to merit publication.



The "monster" was delivered at the seventh month, being the result of the third pregnancy of an Italian woman twenty-two years of age. The first two children are living and well.

Above the eye of the "monster" was attached a rudimentary nose composed entirely of cutaneous tissue (Ethmocephalia) which could be easily moved in any direction.

The monster weighed three and a half pounds.

Yours very truly,
GAETANO PRAINO, M.D.

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RECENT DEATHS.

J. EDWARD HOOLE, M.D., of Somerville, Mass., died suddenly at his home on February 15. Dr. Hoole was born in Lowell in 1869, and was graduated from the College of Physicians and Surgeons at Baltimore, in 1903. Since that time he had practiced his profession in Somerville. He is survived by his widow and one daughter.

EDWARD W. AVERY, M.D., of Brooklyn, N. Y., died in that city on February 13. Dr. Avery was born in 1841, the son of Prof. Charles Avery of Hamilton College. After graduating from Hamilton College he attended the New York Homeopathic Medical College and the College of Physicians and Surgeons, graduating from the latter institution in 1866. During the Civil War he became an assistant surgeon in the United States Navy and later a surgeon in the Army. He enlisted as a surgeon in the German army during the Franco-Prussian War, and was with the troops when they entered Paris. Dr. Avery was the founder of the old Central Homeopathic Dispensary. He was a member of the Kings County Medical Society and of the New York State Homeopathic Society, and senior member of the Kings County Homeopathic Society.

WILLIAM W. BURNETT, M. D., of Wrentham, Mass., died on February 18 of heart disease while returning from a night call in an adjoining town. Dr. Burnett was born in New York City Nov. 9, 1848. He graduated from the New York Homeopathic Medical College in 1870, practiced medicine in that city, in Freehold, N.Y., in Washington, D. C., and in Amherst, Mass. He had been located in Wrentham for about twenty years. He was a member of the Washington Medical Society and the American Institute of Homeopathy. A widow and two children survive him.

ROBERT ALEXANDER DOUGLAS-LITHGOW, M.D., a retired Fellow of the Massachusetts Medical Society, died at Boston, February 16, aged 70 years. He was a graduate of the University of St. Andrews, Dundee, Scotland, 1890, and of the University of Edinburgh, 1871, and had practised in Boston since 1900.

GEORGE BAKER UNDERWOOD, M.D., a Fellow of the Massachusetts Medical Society, died at his home in Gardner, February 2, aged 62 years. He was a graduate of the Dartmouth Medical School in 1882, and joined the Society, from West Gardner, in 1884.

ALBERT CLARENCE LANE, M.D., a retired Fellow of the Massachusetts Medical Society, living in Woburn, died at the Massachusetts General Hospital, Boston, February 1, aged 65 years, following an operation for appendicitis. He was a graduate of the Long Island College Hospital in 1879, and was retired in June, 1916.

SIR FREDRICK WILLIAM BORDEN, M.D., who died on January 6 at Canning, N.S., was born at Cornwallis, N. S., in 1847. A physician by profession, he served for many years as a British army surgeon. From 1896 to 1911 he was minister of militia and defense in the Laurier cabinet, and was knighted for his efficiency in the organization of the Canadian troops who fought during the Boer War in South Africa.